DEPARTMENT OF THE AIR FORCE

RDT&E DESCRIPTIVE SUMMARIES FOR

FY 2001 PRESIDENT'S BUDGET

VOLUME III



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Fiscal Year 2001 Budget Estimate Submission RDT&E Descriptive Summaries, Volume III February 2000

INTRODUCTION AND EXPLANATION OF CONTENTS

- (RDT&E) program elements and projects in the FY2001 President's Budget Submission (PB). All formats in this document are in accordance with the guidelines of 1. (U) GENERAL. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation the DoD Financial Management Regulation, Volume 2B, Chapter 5 with the exception of the R-3 exhibit. The Air Force could not support the format matrix because our programs do not track their programs in the manner required to complete the exhibit.
- of the Congressional committees insofar as possible. The F-22 "P-5" budget exhibit directed by the Authorization Conference Report number 106-371 Contents: Exhibits R-2, R-2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2001 RDT&E program except the classified program elements. The formats and contents of this document are in accordance with the guidelines and requirement has been inserted behind the R-3 exhibit for program element 0604239F. ä
 - Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military the development effort described, and where appropriate, Department of Energy (DOE) costs. نے
 - The Justification book has been assembled in accordance with DoD Financial Management Regulation 7000.14, Vol. 2B Cpt 5, Sec 050302 with the exception of the R-1; Project Funding Listing which was distributed under a separate cover due to classification. ပ

2. (U) CLASSIFICATION.

All exhibits contained in Volumes I, II and III are UNCLASSIFIED. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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BUDGET ACTIVITY 2: APPLIED RESEARCH

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0602269F, Hypersonic Technology Program

Project 1025 funding for this program in FY01 is contained in PEs funding in FY 2000.

Project 6219 was terminated after FY 1999, but Congress added

Subsystems Integration and 0603216F Aerospace Propulsion and Power

0602023F Aerospace Propulsion, 0603203F Aerospace Propulsion

Technology.

0602203F, Project 4847. Project 3326 all lasers and imaging efforts Project 1011 all rocket propulsion efforts will be transferred to

will be transferred to PE 0602605F, Projects 4866 and 4867.

Projects 4866 and 4867 were transferred from PE 0602601F.

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in FY01.

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0602601F, Space Technology

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In FY 2001, the efforts in Project 632863, Integrated Photonics, will be 0603726F, Aerospace Information Technology Systems Integration

FY 2001, the efforts in Project 634850, Collaborative C2, were conducted in PE 0603203F, Project 63665A. Prior to

performed in PE 0603253F, Projects 632735 and 63666A.

BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION

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0603800F, Joint Strike Fighter

SBIRS Low efforts performed in Project 0007 will be transferred to PE 0604442F, Project 4598 in FY00 and 01.

Project 2025 will complete in FY01.

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BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION Continued	DATION Continued
0603854F, Wideband Milsatcom	Project 4870 is a FY01 new start.
0603856F, Air Force/NRO Partnership	Project 4782, the Air Force/National Program Cooperation (AFNPC) effort is a FY01 new start.
0603859F, Pollution Prevention	Project 4852, Pollution Prevention will be transferred from PE 0605854F, previously in Budget Activity 6 beginning in FY01.
BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEVELOPMENT	CTURING DEVELOPMENT
0207249F, Precision Attack Systems Procurement	Project 2693 is a FY01 new start.
0604012F, Joint Helmet Mounted Cueing System	Project 4789 the Joint Helmet Mounted Cueing Systems effort is a FY01 new start.
0604201F, Integrated Avionics Planning and Development Project 2257 will complete in FY01.	Project 2257 will complete in FY01.
0604270F, EW Development	Project 8462 is a FY01 new start.
0604602F, Armament Ordnance Development	Project 3133 will complete in FY01.
0604327F, Hardened Target Munitions	Project 4641 will complete in FY00.
0604617F, Agile Combat Support	Project 2895 will complete in FY01.
0604706F, Life Support System	Project 412A, the K-36/3.5A Ejection Seat effort is a FY01 new start.
0604754F, Joint Tacital Information Distribution System	Project 4749, the Air Defense System Integrator effort is a FY01 new start
0604851F, ICBM	Project 4210 completes in FY00.
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT	T
0604256F, Threat Simulator Development	Project 3321, Joint Modeling and Simulation System (JMASS) funding and responsibility transferred in FY00 to PE 0207601F.

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT Continued	CT Continued
0604256F, Threat Simulator Development	Project 7500, Foreign Materiel Acquisition and Exploitation (FMA/E) established a funding line in FY00.
0605808F, Development Planning	PE terminated in FY00.
0604759F, Major T&E Investment	Project 4759, two I&M projects started in FY00: Modeling & Simulation T&E Resources (MASTER); and Seeker T&E.
0604759F, Major T&E Investment	Project 4759, the Advanced Range Telemetry Integration (ARTM) was developed by CTEIP (OSD PE 0604940D). The ARTM I&S (Integration and Support) funding in this PE begins in FY01. Integrates the OSD developed ARTM into the Edwards AFB range.
0605854F, Pollution Prevention	Program moved into Budget Activity 4, to PE 0603859F beginning in FY01.
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT	ELOPMENT
0101120F, Advanced Cruise Missile	Project 4798, the AGM-129A Advanced Cruise Missile Service Life Extension Program effort is a FY01 new start.
0207133F, F-16 Squadrons	Project 2671, the Automated Ground Collision Avoidance system, Falcon Star, and Targeting Pod/HARM Targeting Systems efforts are FY01 new starts.
0207141F, F-117A Squadrons	Project 3956, the F-117 Enhanced GBU-27 effort is a FY01 new start.
0303140F, Information Systems Security Program	Project 4585, Cryptologic 2020, will be funded under PE 33401F, Comm Sec, Project 4861, Cryptologic 2020, beginning in FY01.
0303601F, Milsatcom Terminals	Project 2487, the Airborne Wideband Terminal and Ground Multiband Terminal effort are a FY01 new start.
0305205F, Endurance Unmanned Aerial Vehicles	Project 4883 is a FY01 new start. Project 4816 will merge into 4799 in FY00.

INTRODUCTION AND EXPLANATION OF CONTENTS

Program ElementRemarksBUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT Continued 0305206F, Airborne Reconnaissance SystemProject 4882 is a FY01 and Project 4820 will be tran Project 4791, the Groun Surveillance Sustainmen0401115F, C-130 Airlift SquadronsProject 4885 is a FY01 and Project 4886 is a FY01 and Project 4860 is a FY01 and Project Assources Support ImprovementProject 4860 is a FY01 and Project Assources Support Improvement1001018F, NATO Joint StarsProject 0002, the Project	Remarks ELOPMENT Continued Project 4882 is a FY01 new start. Project 4820 will be transferred to PE 0305202F beginning in FY01. Project 4791, the Ground-Based Electro-Optical Deep Space Surveillance Sustainment effort is a FY00 new start. Project 4885 is a FY01 new start. Project 4886 is a FY01 new start. Project 4860 is a FY01 new start.
Rad	Radar Project effort is a FY01 new start pending Congressional approval.

	RDT&E BUDGET ITEM JU		ATION	SHEET	STIFICATION SHEET (R-2 Exhibit)	thibit)		DATE	February 2000	y 2000
800 07 -	вирсет астилту 07 - Operational System Development			PE NUMBER 0303150 CONTR	PE NUMBER AND TITLE 0303150F WWMCC: CONTROL SYSTEM	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	OBAL CO	OMMAND	8	РRОЈЕСТ 674667
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674667	67 Global Command and Control System - AF	12,235	3,817	3,743	3,829	3,942	4,022	4,100	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
Note cons Not unde	Note 1: Funds in FY 1999 were realigned to PE 0303150F and the the new program title became Global Command and Control System (GCCS). This is an effort to consolidate and centralize accounting for the AF GCCS program, which is now the operational system of record. Note 2: Beginning in FY 2000, funding for Deliberate and Crisis Action Planning and Execution Segments (DCAPES) are to be submitted as a separate project (674802) under PE 27438. For administrative purposes, FY 1999 DCAPES funds were executed under project 4667.	and the the gram, which d Crisis Act	new progra i is now the ion Planning were execu	m title becar operational s s and Execut	me Global C system of re- ion Segmen- oject 4667.	cord.	d Control Sy are to be s	stem (GCC)	and the the new program title became Global Command and Control System (GCCS). This is an effort to ram, which is now the operational system of record. Crisis Action Planning and Execution Segments (DCAPES) are to be submitted as a separate project (674 APES funds were executed under project 4667.	l effort to 1ject (674802)
9	A. Mission Description The Global Command and Control System (GCCS) is the designated Command and Control migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Defense Information Infrastructure (DII) Common Operating Environment (COE), and has an end objective to eliminate stovepipe systems. The AF is responsible for developing four of the modules that will make up the COE, and integration of AF unique applications with the COE.	s the designa ystem capab g a Defense or developir	ited Comma le of suppor Informatior ig four of th	nd and Cont ting all eche Infrastructu e modules th	rol migratio slons of the U re (DII) Col lat will make	n system for JS military c mmon Opera	the DoD. I command stricting Enviro	t is an integr ructure. GC nment (COE ation of AF	rated Commar CS solves C4 3), and has an unique applii	nd, Control, I interoperability end objective to cations with the
23333	\$5,607 GCCS Migration Support /COE I \$5,986 Crisis Action Planning Evolution \$2,642 Prototype software development \$12,235 Total	E Development on nt	ent							
99999	\$983 COE Development \$1,851 GCCS Migration Support \$983 COE Distribution \$3,817 Total									
	Project 674667		Page	Page 1 of 5 Pages	S			ш	Exhibit R-2 (Exhibit R-2 (PE 0303150F)

<u> </u>	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibi	t)	DATE February 2000	y 2000
80DK	вирсет Астииту 07 - Operational System Development	PENUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	GLOBAL CO	MMAND &	РRОЈЕСТ 674667
<u>(</u>	A. Mission Description Continued				
99999	FY 2001 (\$ in Thousands) \$944 COE Development \$1,854 GCCS Migration Support \$945 COE Distribution \$3,743 Total				
9	B. Budget Activity Justification This effort is Budget Activity 7, Operational System Development, because the program develops and implements software for an operational computer network.	e program develops and imple	ments software for	an operational computer	network.
9	C. Program Change Summary (\$ in Thousands)				
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	FY 1999 13,137 13,675	FY 2000 3,929 3,929	3,777	Total Cost TBD
<u> </u>	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research	-538	-91		
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions	-2,369 1,943 -68	-21		
99	 Uther Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR 	12,235	3,817	-34 3,743	TBD
5	Significant Program Changes: N/A				
	Project 674667 Page	Page 2 of 5 Pages		Exhibit R-2 (PE 0303150F)	PE 0303150F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ET ITE	M JUSTII	-ICATION	SHEET (R-2 Exh	ibit)		DATE Febr	February 2000	00.
BUI 07	вирбет Астилту 07 - Operational System Development	opment			PE NUMBER AND TITLE 0303150F WWM CONTROL SYST	PE NUMBER AND TITLE 0303150F WWMCC: CONTROL SYSTEM	PENUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	IL COMM	AND &		РРОЈЕСТ 674667
(£)	D. Other Program Funding Sumi	nary (\$ in T FY 1999	Thousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003	FY 2004	FY 2005	Cost to	의 {	Total Cost
99	AF RDT&E Other APPN	4,436	5,672	14,753	15,083	15,365	21,617	22,011	Continuing	St	TBD
9	E. Acquisition Strategy Electronics Systems Center (ESC), Hanscom AFB, MA will manage the overall AF GCCS program (Common Operating Environment (COE) and Crisis Action Plannin Evolution) development. The COE development is being performed in-house to support AF contributions to the Joint service GCCS program and to support AF mission applications that utilize the COE.	anscom Al	FB, MA will r t is being perf	nanage the ove ormed in-house	will manage the overall AF GCCS program (Common Operating Environment (COE) and Crisis Action Planning sperformed in-house to support AF contributions to the Joint service GCCS program and to support AF mission	program (Cor contributions	nmon Operatin to the Joint se	g Environmer rvice GCCS p	nt (COE) and rogram and to	Crisis Acti o support A	ion Planning AF mission
3	F. Schedule Profile										
				-	EY 1999 2 3	4	1 EX.	EX 2000 2 3 4		EY 2001 2	3 4
99	COE Development Multi-Media				*	*	*	×			
99	Distributed Computing Services Office Automation				* *	* *	* ×	××		××	××
(£)	* ×				*	*	×	×		×	×
	Project 674667			Pag	Page 3 of 5 Pages				Exhibit R	Exhibit R-2 (PE 0303150F)	303150F)

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PI	/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDOV	WN (R-3)		DATE Fe	February 2000	00
80E 07	вирсет астилту 07 - Operational System Development	evelopme	ţ		PE NUMBE 030315 CONTE	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	CS/GLOE	3AL COMIN	MAND &	9	РКОЈЕСТ 674667
Ð	A. Project Cost Breakdown (\$ in Thousands)	\$ in Thousand	(<u>S</u> I				0001 VI	000	EV 2000	ç	EV 2001
555		ent (COE) Dev on	elopment				3,5,5	3,607 5,986	983	3 _K	944
<u> 38</u>		, ut					2,1	2,642	1,851		1,854
99	COE Distribution Total						12,	12,235	983 3,817	7 33	945 3,743
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	<u>y and Plannin</u>	g Informatio	n (\$ in Thousand	(3)						
3	Performing Organizations:										
	id to	Contract Method/Type	Award or	Performing	Project	,	,	,	,	,	
	Performing Activity	or Funding Vehicle	Obligation Date	Activity EAC	Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	evelopment Organiz	ations	1			į				,	
	Rome Lab Material Systems Groun	FFP/FCA various	Jun 95 varions			250				Continuing Continuing	TBD
		various	various		•	82				Continuing	TBD
	DCAPES FFP/LHAF Jul 98 *In FY 00 DCAPES funding is transferred to PE 27438	FFP/LHAF s transferred to	Jul 98 PE 27438			1,700	7,715			Continuing	TBD
	Support and Management Organizations	nizations		,							
	TEMS					5,819	1,722	1,552	1,488	Continuing	TBD
	Miscellaneous					6,7/4 15	2,184 614	2,223 42	2,208 47	Continuing Continuing	TBD
	Test and Evaluation Organizations	suo								ı	
	Project 674667			Pag	Page 4 of 5 Pages	es			Exhib	Exhibit R-3 (PE 0303150F)	03150F)
l											

RDT&E PROGRAM ELEMENT/PROJECT	I/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0303150F WWMCCS/GLOBAL COMMAND &	CS/GLOB	AL COM	AAND &	H .9	PROJECT 674667
	CONTROL SYSTEM	M				
Subtotals	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Subtotal Product Development	3,435	7,715	,	,	TBD	TBD
Subtotal Test and Evaluation	12,008	4,320	3,617	5,/45	180	IBU
Total Project	16,043	12,235	3,817	3,743	TBD	TBD
Project 674667	Page 5 of 5 Pages			Exhibit	Exhibit R-3 (PE 0303150F)	3150F)

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RDT&E BUDGET ITEM JU	USTIFIC	ATION	ISTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0303401	PE NUMBER AND TITLE 0303401F Comn	PE NUMBER AND TITLE 0303401F Communications Security	ns Secu	rity		PROJECT 674861
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674861 Cryptologic 2000	0	0	4,857	4,700	5,511	5,507	4,017	4,017 Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

NOTE: FY99 through FY00 funds are in PE 33140F. Beginning in FY01, funding for this effort is located in this PE.

(U) A. Mission Description

publications for all AF weapon systems. AFEKMS replaces the existing physical distribution and management system providing COMSEC keying material for USAF flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) three tier system structure in a hierarchical arrangement. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the 'wholesale' capability. Tier 2 installations comprise the distribution network and tier 3 comprises the Information Protection. Information Protection emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a The Cryptologic project consists of Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, in concert with NSA's EKMS, provides a secure and retail locations' where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE) - the consumer. Acquisition includes Commercial Off The Shelf (COTS) computers and software, contractor developed application software, Government Furnished Equipment (GFE) and software such as the NSA's Local COMSEC Management Software (LCMS). Also, USAF developed application software (UAS) is necessary for unique systems such as the F-22 and unique key fill requirements of EICE for other airborne platforms.

successful re-hosting is feasible, it would reduce the hardware replacements costs to 20% of the original cost of the equipment. The Browser currently being developed workstations from the current UNIX equipment to either Windows NT or SUN Solaris operating systems. This study is expected to take 15-24 months to complete. If Current technology feed into deployed Tier 2 installations: A contract study begins in Oct 99 under NSA supervision to determine the scope of re-hosting Tier 2 will also be added to Tier 2 during tech refreshes and system upgrades.

experience and insight we have gained in the last few years in the Cryptologic 2020 application, we see the need for a solid continuous R&D line to work the constantly Given the complexity of emerging communication technologies, the growing complexity of desired DOD/AF applications of these technologies, and more recently the emerging challenges in developing, acquiring and fielding state-of-the-art Key Management Infrastructure software and COMSEC equipment.

Exhibit R-2 (PE 0303401F) Page 1 of 5 Pages Project 674861

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ON SHEET (R-2 Exhibit	t)	DATE February 2000	2000
80DC 07 -	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0303401F Communications Security	ations Secu	rity	PROJECT 674861
9	A. Mission Description Continued				
999	FY 1999 (\$ in Thousands) \$0 Activity is Funded in PE 33140F (\$1.957) \$0 Total				,
999	EY 2000 (\$ in Thousands) \$0 Activity is Funded in PE 33140F (\$1.233) \$0 Total				
99	EY 2001 (\$ in Thousands) \$2,386 Program Office Support - for continued work on the Key Management Infrastructure (KMI) for the Defense Information Infrastructure Common	tinued work on the Key Management Infrastructure (KMI) for the Defense Information In	KMI) for the De	fense Information Infrastruct	ture Common
999	\$485 Tier 2 DII-COE Compliance \$1,986 Local Management Device/Data Management De	L) the browser-based Development enton to Ar ruon Management Device (LMD/DMD) Browser Interface	inc Ney illinastiuc	ture imprementation	
9	B. Budget Activity Justification This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies.	because it addresses the development	t and transition of	information security, protec	ction and
9	C. Program Change Summary (\$ in Thousands)	0001 131	0000 783	1000 XX	E
555	Previous President's Budget (FY 2000 PBR) Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other	FY 1999	EX 2000	FY 2001 0	Total Cost
9	Adjustments to Budget Years Since FY 2000 PBR			4,857	
Δ.	Project 674861	Page 2 of 5 Pages		Exhibit R-2 (PE 0303401F)	0303401F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	T ITEN	I JUSTIF	-ICATION	SHEET (R-2 Exhi	bit)	<u>^</u>	DATE February 2000	y 2000
BUE 07	вирсет астилту 07 - Operational System Development	opment			PE NUMBER AND TITLE 0303401F Comr	AND TITLE Commun	PE NUMBER AND TITLE 0303401F Communications Security	Security		PROJECT 674861
(c)	C. Program Change Summary (\$ in Thousands) Continued	n Thousan	ds) Continue	Þ		EV 1000	EV 2000		EV 2001	Total Cont
9	Current Budget Submit/FY 2001 PBR	~.				1 1 1 2 2 2	77	1	4,857	TBD
9	Significant Program Changes: N/A									
9	D. Other Program Funding Summa	nary (S in Tl FY 1999 Actual	housands) FY 2000 Fyimate	FY 2001 Ferimate	FY 2002 Fertimate	FY 2003 Fertimate	FY 2004 Estimate	FY 2005 Fertimate	Cost to	Total Cost
599	AF RDT&E Other APPN APPN 3600/PE 33140F/PE	1,957	1,233	0	0	0	0	0	Continuing	TBD
	Title Information Systems Security Program/BPAC 674585/Title Cryptologic									
<u>(</u>		410 e in PE 331	40F. Beginn.	ing in FY01, fu	nding for this e	:ffort is located	1 in this P.E.		Continuing	TBD
9	E. Acquisition Strategy All major contracts within this Program Element are awarded after full and open competition.	m Element	are awarded	after full and o	pen competitio	ď				
<u> </u>	E. Schedule Profile Establish Tier 2 DII—COE Compliance Begin Development of LMD/DMD Browser Interface Start Continuous MITRE Support	e 3rowser Int	erface		EY 1999 2 3	4	FY 2000	3 4	××× - E	FY 2001
<u></u>	Project 674861			Рав	Page 3 of 5 Pages				Exhibit R-2 (PE 0303401F)	E 0303401F)
					1001					

	RDT&E PROGRAM ELEMENT	AM ELE		/PROJECT C	OST BI	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	8
BU[BUDGET ACTIVITY O7 - Operational System Development	velopme	ıt.		PE NUMBER AN 0303401F	PE NUMBER AND TITLE 0303401F Comm	unication	иртите Communications Security		T 0	PROJECT 674861
(£)) A. Project Cost Breakdown (\$ in Thousands)	in Thousan	(SI				FV 1000	000	EV 2000		FV 2001
99	Software Development Total							722	F 1 20	3	4,857
<u> </u>	B. Budget Acquisition History and Planning Information (\$ in Thousands)	and Plannin	g Informatic	on (\$ in Thousanc	ls)						
<u>e</u>	Performing Organizations: Contractor or	Contract									
		Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Vehicl Product Development Organizations	<u>Vehicle</u>	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	SAIC (GS-35F-44616) BPA	BPA	May 98	N/A	N/A	00	00	0 0	985	Continuing	TBD
	()	FFRDC	Nov 00	N/A	N/A	0	0	0	2,386	Continuing	TBD
	Support and Management Organizations N/A Test and Evaluation Organizations N/A	izations									
<u> </u>	Government Furnished Prop	oerty: Contract Method/Tyne	Award or								
	Item Original Veription Product Development Property N/A	or Funding Vehicle	Obligation Date	<u>Delivery</u> Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Support and Management Property N/A Test and Evaluation Property N/A	≱1									
	Project 674861			Рав	Page 4 of 5 Pages	;es			Exhib	Exhibit R-3 (PE 0303401F)	03401F)

RDT&E PROGRAM ELEMENT/PROJECT	I/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0303401F Communications Security	unications	Security		9	РРОЈЕСТ 674861
	Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Product Development	0	0	0	4,857	TBD	TBD
Subtotal Support and Management						
Subjudial Lest and Evaluation Total Project	0	0	0	4.857	TBD	TBD
Project 674861	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0303401F)	3401F)

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	RDT	RDT&E BUDGET ITEM JU		ATION	SHEET	STIFICATION SHEET (R-2 Exhibit)	thibit)		DATE	Februa	February 2000
BUD(07 -	BUDGET ACTIVITY 07 - Operational Sy	вирсет астилту 07 - Operational System Development			PE NUMBEF 0303601	PE NUMBER AND TITLE 0303601F MILS/	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals	erminals			PROJECT 672487
	COST (\$	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672487	87 MILSTAR (AF - Terminals)	erminals)	6,018	6,923	17,797	24,416	34,334	79,367	90,590	0	2,297,542
	Quantity of RDT&E Articles	E Articles	0	0	0	0	0	0	0	0	0
5 55555	A. Mission Description Military Satellite Commur contains efforts to develop Frequency (UHF) satellite (GBS) is a joint program thigh volume classified and Post Terminal (CPT) enha gradual transition from a N maintaining essential stratt Terminals program in FY9 military unique) and continand strategic air forces and development begin in FY9 the Secure Mobile Anti-Ja production continues. Eff design and implementation Communications (JRSC) s FY 1999 (\$ in Thousands) \$1,039 Cor \$2,542 Cor \$2,437 Cor \$6,018	A. Mission Description Military Satellite Communications (MILSATCOM) provides world-wide communications to strategic and tactical warfighters. The MILSATCOM Terminals Program contains efforts to develop equipment for users to communicate over military statellites, including Milstar, Advanced Externethy High Frequency (AEHF), Ultra High Frequency (UHF) satellites, Defense Satellite Communicate over military statellites, including Milstar, Advanced Externethy High Frequency (AEHF), Ultra High Prequency (UHF) satellites, Defense Satellite Communicate over military statellites, and the world-wide, high-capacity satellite broadcast information system that will provide a continuous, high speed, one-way flow of high volume classified and unclassified data, imagery and other information to forces in garrison, deployed, or on the move. Milstar ground and airborne Command of Sort Terminal (TCT) enhancements are continuing in addition to system-level tearing in support of Milstar ICO. II. The MILSATCOM Terminals program began a gradual transition from a Milstar-centered program to a wider focus of multihand SATCOM supporting the tactical requirements for Air Expeditionary Forces while maintaining essential strategic connectivity for nuclear forces. Future concept development efforts and new terminals development became the key focus of the AF Terminals program to a wider focus of multihand SATCOM supporting to the casured high capacity connectivity for conventional and strategic and forces and ground continueur to components. Airborne wideband terminal (AWT) risk reduction and ground multiband terminal (GMT) development begin in FY01. CPT replacement will begin in FY03. The Air Force's Milstar tactical terminals, the Single Channel Anti-Jam Rainband and airborne UHF SATCOM terminals support activities EV 1999 (\$\frac{1}{2}\$ in Thousands) Continued MILSATCOM terminals support activities Continued MILSATCOM terminals support activities Continued MILSATCOM terminals support activities Continued CPT upgades/begin contra	mmunicate of mication Sy high-capaci and other in addition to a wider focus. Fu toept develo fimap develo fimap develo fimap develo fimap develo man (SMART program are nent efforts and suppon in contractor tions/MILSA	ld-wide con wer military stem (DSCS by satellite b aformation to system-level us of multib titure concep oment, culm ents. Airbo 13. The Air -T) are fund primarily fo unstain and ratest and oper test and oper tes	nowides world-wide communications to standinate over military satellites, includation System (DSCS), and Wideband high-capacity satellite broadcast informat and other information to forces in garrisc addition to system-level testing in suppor a wider focus of multiband SATCOM surforces. Future concept development effects and development work further increases map development, culminating in new terrol components. Airborne wideband teregin in FY03. The Air Force's Milstar tall (SMART-T) are funded by the Air Fororogram are primarily focused on the gront efforts sustain and modernize the Grient efforts sustain and modernize the Grient support activities	s to strategic ncluding Mi. band Gapfill ormation sy: arrison, dep upport of M. M. supportir ant efforts an asses empha ew terminal of terminal ir Force and e ground and e ground and ort imap	s and tactical lstar, Advander as well as stem that wil loyed, or on ilstar IOC II. ag the tactica do new termissis on assess products for erminals, the procured by d airborne D lobile Forces lobile Forces	warfighters ced Extreme s commercia l provide a the move. I The MIL! Il requirement als develor assured hig reduction and sold the Army. emand Assign terminal and standing assured hig should be sold the Army.	i. The MILS ily High Freq il satellites. continuous, I Milstar groun SATCOM T onent becam mological al h capacity o d ground mu unnel Anti-Je Ground and gned Multipl id the Jam-R	'ATCOM Teguency (AEI Global Broad nigh speed, cand and airbon erminals pro- ermeditionary to the key for ternatives (connectivity form and Manporta airborne UH le Access (D cesistant Seconsistant Secons	nowides world-wide communications to strategic and tactical warfighters. The MILSATCOM Terminals Program mmunicate over military satellites, including Milstar, Advanced Extremely High Freguency (AEHF), Ultra High nication System (DSCS), and Wideband Gapfiller as well as commercial satellites. Global Broadcast Service high-capacity satellite broadcast information system that will provide a continuous, high speed, one-way flow of and other information to forces in garrison, deployed, or on the move. Milstar ground and airborne Command addition to system-level testing in support of Milstar IOC II. The MILSATCOM Terminals program began a wider focus of multiband SATCOM supporting the tactical requirements for Air Expeditionary Forces while reforces. Future concept development efforts and new terminals development became the key focus of the AF cept development work further increases emphasis on assessment of technological alternatives (commercial and map development, culminating in new terminal focuts for assured high capacity connectivity for conventional trol components. Airborne wideband terminal (AWT) risk reduction and ground multiband terminal (GMT) eggin in FY03. The Air Forces Milstar tactical terminals, the Single Channel Anti-Jam Manportable (SCAMP) and al (SMART-T) are funded by the Air Force and procured by the Army. Ground and airborne UHF terminal program are primarily focused on the ground and airborne Demand Assigned Multiple Access (DAMA) terminals tent efforts sustain and modernize the Ground Mobile Forces terminal and the Jam-Resistant Secure contractor test and operations support
Д	Project 672487			Page	Page 1 of 6 Pages	S			Е	Exhibit R-2	Exhibit R-2 (PE 0303601F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibi	t)	DATE February 2000	y 2000
900c 07 -	вирсет астилту 07 - Operational System Development	PENUMBER AND TITLE 0303601F MILSATCOM Terminals	M_Terminals		PROJECT 672487
(D)	A. Mission Description Continued				
99999	\$1,260 Continue MILSATCOM terminals support activities \$1,260 Continue contractor test and operations support \$2,900 Continue contractor bemo/MILSATCOM Terminals Roadmap/SATCOM testing \$2,763 Total	oadmap/SATCOM testing			
9999999	\$2,442 Continue MILSATCOM terminals support activities \$1,563 Continue contractor test and operations support \$5,192 Concept/Prototype Demo/MILSATCOM Terminals Roadmap/SATCOM testing \$5,600 Begin Ground Multiband development \$3,000 Begin Airborne Wideband risk reduction \$17,797 Total	oadmap/SATCOM testing			
9	B. Budget Activity Justification This effort is funded in Budget Activity 7, Operational System Development,	System Development, because the program has completed a Milestone III review and is in production.	eleted a Milestone I	II review and is in prod	action.
9	C. Program Change Summary (\$ in Thousands)	FV 1000	FV 2000	FV 2001	Total Con-
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	2,159 2,159 2,352	7,026	14,955	1,937,934
9	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research	-193 -62	-10		
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other	3,955 -34	-38		
99	tents to Budget Years Since FY 2000 PBR Budget Submit/FY 2001 PBR 3.955M FY99 Below Threshold Reprogrammir	2,842 6,018 6,923 17,797 2,29 g (BTR) funded continuation of Air Force MILSATCOM Terminals roadmap and operational support that	6,923 COM Terminals ro	2,842 17,797 admap and operational s	2,297,542 upport that
ď	Project 672487 Page	Page 2 of 6 Pages		Exhibit R-2 (I	Exhibit R-2 (PE 0303601F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	M JUSTIF	ICATION	SHEET	R-2 Exhi	bit)	Δ	DATE February 2000	v 2000
BUD(07 -	вирсет астіліту 07 - Operational System Development			PE NUMBER AND TITLE 0303601F MILS.	AND TITLE	NITLE MILSATCOM Terminals	inals		PROJECT 672487
Ð	C. Program Change Summary (\$ in Thousands) Continued EY 1999 EY 2000 EY 2000 EY 2000 EY 2000 EY 2001 Total Co. started in FY98. This funding increased levels of on-going efforts such as: (1) AF terminal roadmap definition integrating SATCOM into the Global Grid, (2) Efforts to prototype multiband airborne SATCOM antennae, (3) Assessing commercial SATCOM capabilities, and (4) Supporting DOD MILSATCOM architecture definition.	nds) Continued of on-going eff ennae, (3) Asse	i orts such as:	(1) AF terming cial SATCOM	FY 1999 I roadmap defi capabilities, a	FY 2000 inition integratii nd (4) Supportir	1) EX ing SATCOM ing DOD MIL	FY 2001 OM into the Global C IILSATCOM archite	Total Cost brid, (2) Efforts ecture definition.
9	Significant Program Changes: This activity is a continuation of the FY98 effort. New Airborne Wideband terminal development.	ort. New starts i	nclude AWT	risk reduction	and GMT deve	lopment to beg	zin in FY01.	starts include AWT risk reduction and GMT development to begin in FY01. FY01 adjustments add funding for	s add funding for
<u>e</u>	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	Chousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99									
9		19,135	24,893	48,428	43,651	41,892	65,853	Continuing	IBD
9	Appn 16, BPACs 836780, 25,673 MILSATCOM Space and BPAC 822260, High Mobility	41,888	48,175	37,731	43,145	59,951	47,741	Continuing	TBD
	Related RDT&E: PE 64479F Milstar LDR/MDR Satellite Communications PE 33110F Defense Satellite Communications System (DSCS) PE 63854F Global Broadcast Service PE 63432F Polar EHF PE 63430F Advanced EHF	R Satellite Com Communicatio t Service	munications ns System (D)	SCS)				·	
5	E. Acquisition Strategy All eighty-one Milstar Command Post terminals have been procured with investment funds. Software enhancements, testing, EDM repair, program, and technical support are continuing. These efforts will be modifications to existing contracts. Airborne Wideband will be a competitive acquisition.	s have been proodifications to e	cured with inv xisting contra	estment funds acts. Airborne	Software enh Wideband wil	ent funds. Software enhancements, testing, EDM repa Airborne Wideband will be a competitive acquisition.	iting, EDM regive acquisitio	pair, program, and n.	l technical
ව	F. Schedule Profile			FY 1999		$\overline{\mathrm{FY}}2000$	000	FY	FY 2001
<u>г</u>	Project 672487		Pag	Page 3 of 6 Pages				Exhibit R-2 (F	Exhibit R-2 (PE 0303601F)

RDT&E BUDGET ITEM JUSTIFICAT	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)			DATE		February 2000	2000	
вирдет астіліту 07 - Operational System Development	PE NUMBER AI 0303601F		₩ ТITLE MILSATCOM Terminals	Term	inals				PROJECT 672487	ест 487
(U) E. Schedule Profile Continued	FY 1999	66		FY 2000	000			FY 2001	100	
(U) CPT Upgrades Delivery and Production (U) Milstar SYS IOC II	* 1	ε * 4 *	→ *	~ ×	ε ×	4 X	- ×	~ ×	$\kappa \times \times$	4 X
 (U) SCAMP Deliveries Begin (U) SMART-T LRIP Deliveries (U) SMART-T Production Deliveries 		*	*	×	×	××	×	×	×	×
 (U) Automic DAMA Terminal Opgrave (U) Deliveries (U) Ground DAMA Terminal Deliveries (U) Ground Multiband development (U) Airborne Wideband Terminal Risk Reduct. 	* *	*	*	××	×	××	****	××	××	××
* Completed event X Planned event										
Project 672487	Page 4 of 6 Pages	S					Exhibit	Exhibit R-2 (PE 0303601F)	03036	01F)

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	WN (R-3)		DATE Fe	February 2000	90
20	BUDGET ACTIVITY 07 - Operational System Development	evelopme	nt		PE NUMBI 030360	PE NUMBER AND TITLE 0303601F MILSATCOM Terminals	TCOM Tel	minals		9	РРОЈЕСТ 672487
(£)	A. Project Cost Breakdown (\$ in Thousands)	\$ in Thousanc	(8)				į				
5	MILSATCOM terminals support activities	ort activities					FY 1999	1 039	FY 2000 1 260	21 c	2 442
33	CPT upgrades/contractor test and operations support	nd operations	support				, 2,	2,542	2,900	. 0	1,563
<u> </u>	Concept/Prototype Demo/MILSATCOM Terminals Roadmap Ground Multiband	SATCOM Ter	minals Roadma	d			2,	2,437	2,763		5,192
999	Airborne Wideband Total						6,	, 0 6,018	0 0 6,923		3,000
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	y and Plannin	g Information	(\$ in Thousand	ds)						
9	Performing Organizations:										
· ·											
	t)	a	Award or	<u>Performing</u>	Project		,	,	,		
	ing	gu	<u>Obligation</u>	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity venicing Venicing Product Development Organizations	<u>Venicle</u> ations	Date	TEAL	EAC	10 FY 1999	F X 1999	7007	FX 2001	Complete	Program
	Raytheon Corp	FPIF/FFP	Jun 85	889,337	889,337	883,570	1,204	2,000	1,563	1,000	889,337
	Rockwell	CPIF	Aug 93	43,068	43,068	43,068	0	0	0	0	43,068
	Miscellaneous	Various	Various			651,580	0	0	8,600	341,567	1,001,747
	ViaSat	C/FFP	Oct 95	3,076	3,076	3,076	0	0	0	0	3,076
	and Management Org	nizations			,		•	•		,	
	MITRE Contractors	CPAF Varions	Various Various	∀	A/N	102,178	3,500	2,100	2,939	14,250	124,967
		Various	Various	N/A	N/A	1,848	150	310	705	0	3.013
	Miscellaneous	Various	Various	N/A	N/A	19,715	44	180	989	13,536	34,111
	Test and Evaluation Organizations	suo									
	Wright-Labs	AF-616	N/A	N/A	N/A	22,103	0	1,000	1,500	0	24,603
	Miscellaneous	Various	N/A	N/A	N/A	5,507	0	0	0	0	5,507
	Project 672487			Pag	Page 5 of 6 Pages	sa.			Exhibi	Exhibit R-3 (PE 0303601F)	03601F)
ļ											

PER NUMBER AND TITLE	RDT&E PROGRAM ELEMENT/PROJECT	IECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
Total Prior Budget Budget FY 1999 FY 2000 FY 1,581,294 1,204 2,000 10 280,362 4,814 3,923 6 57,610 0 1,000 11 1,889,266 6,018 6,923 17 1,889,266 6,018 6,923 17 1,920 6,018 6,	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0303601F MILSA	TCOM Ter	minals		<u>a</u>	PROJECT 672487
tot Development 1,281,294 1,204 2,000 101 280,362 4,814 3,923 6 1,889,266 6,018 6,923 17 1,889,266 6,018 6,923 17 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,000 11 1,920 1,9	Cteodo1.	Total Prior	Budget	Budget	Budget EV 2001		Total
280,362 4,814 3,923 6 of and Management 27,610 0 1,000 1 1,889,266 6,018 6,923 117 1,889,266 6,018 6,923 117 1,920,000 1 1,920	Subtotal Product Development	1.581.294	1,204	2,000	10,163	342,567	1.937.228
27,610 0 1,000 1 1,889,266 6,018 6,923 17 1,890,266 6,018 6,923 17 1,200 1 1,0	Subtotal Support and Management	280,362	4,814	3,923	6,134	34,971	330,204
1,889,266 6,018 6,923 17	Subtotal Test and Evaluation	27,610	0	1,000	1,500	0	30,110
	Total Project	1,889,266	6,018	6,923	17,797	377,538	2,297,542
Dans Coff Dans							
rage o or o rages	Project 672487	Page 6 of 6 Pages			Exhibi	Exhibit R-3 (PE 0303601F)	33601F)

PE NUMBER: 0305099F PE TITLE: Global Air Traffic Management (GATM)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operatic	вирсет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0305099F Globs	R AND TITLE	l Air Traf	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	gement	(GATM)	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	24,882	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD
674689	Global Access Architecture	22,780	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD
674690	674690 GATM Integration	2,102	0	0	0	0	0	0	0	2,102
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. To facilitate development, integration, satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety interoperability, and exploration of dual-use technologies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use capabilities of avionics to weapon system implementation. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development 4689. Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives. 4690. GATM Integration [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet C-130 modernization efforts and minimizes down time. Realigning under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria. AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and

Page 1 of 17 Pages

Exhibit R-2 (PE 0305099F)

1307

	RDT&E BUDGET ITEM JUSTIFICATION	N SHEET (R-2 Exhibit)	G	DATE February 2000	00
80DC 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305099F Global Air	Traffic Manag	⊌टाग∟Е Global Air Traffic Management (GATM)	
<u> </u>	A. Mission Description Continued Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99 includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives.	The MC-130H and other Special of code, testing the changes, and updatordance with GAO recommendation	Operations Forces (ting software docu ons, FY00 and FY0	(SOF) aircraft have highly un mentation and maintenance to I GATM Integration funding	ique and chnical was
E	B. Budget Activity Justification Project 4689: This program upgrades avionics to add air traffic control capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development. Project 4690: This program will develop mission essential capability for fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.	oabilities to currently fielded weapc ielded weapon systems and is assig	on systems and is as	ssigned Budget Activity 7, Ol ty 7, Operational Systems De	oerational velopment.
9	C. Program Change Summary (\$\sin Thousands)				
<u> </u>	Pervious President's Budget (FY 2000 PBR) Pervious President's Budget (FY 2000 PBR) 26,521 6,517 8,584 Post Designation for the Adjustments to Appropriated Value 27,056 6,517 8,584 Post Design Control of Adjustments to Appropriated Value -535 -535 -535 Post Design Control of Appropriated Value -535 -535 Post Design Control of Appropriated Presided Reprogram -650 -650 -650 Post Design Control of Adjustments to Budget Years Since FY 2000 PBR -139 -115 -76 Post Design Control of Adjustments to Budget Submit/FY 2001 PBR -160 -160 -160 Post Design Control of Appropriation funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP for GATM initiatives.	EY 1999 26,521 27,056 -535 -850 -650 -139 vionics Modernization Program (A AMP for GATM initiatives.	EY 2000 6,517 6,517 -115 6,402 MP). FY99 funds	EY 2001 8,584 -76 8,508 will be used to begin design of	Total Cost TBD ragineering
*****	Pa	Page 2 of 17 Pages		Exhibit R-2 (PE 0305099F)	(05099F)

	RDT&	RDT&E BUDGET ITEM JU	STIFICATION SHEET (R-2A Exhibit)	NOIL	HFFT	R-24 E	vhihit)		DATE		0000
GUB GUB	BUDGET ACTIVITY						VIII NIL		1	reprua	rebruary 2000
04	- Operational Sy	07 - Operational System Development			0305099	0305099F Globs	al Air Trai	ffic Mana	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	(GATM)	PROJECT 674689
	COST (\$	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674689	89 Global Access Architecture	hitecture	22,780	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD
9	A. Mission Description 4689: Global Air Traffi, Organization (ICAO). C (GANS) management ef AF's central focal point to weapon system impleme information dominance, activities are undertaken interoperability, and exp satisfy GATM and milita AF aviation weapon syst requirements for ACAT	c Management: GATM is th AATM, Navigation and Safet fort. The Global Air Traffic for analyzing and evaluating nitation. The system architec bombers, fighters, trainers, h in conjunction with existing loration of dual-use technolo iry requirements of the Air F ems are postured to meet civ III projects across multiple w	e Air Force program designed to meet the evolving aviation requirements of the Internation, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPC operational requirements, developing aircraft system architectures, acquiring aviation equirures identify necessary equipment and aircraft capability shortfalls across the Air Force elicopters, and unmanned aerial vehicles. For those capabilities where no current solution DoD communications, navigation, surveillance, and safety program offices. To facilitate gies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use ca orce fleet will be explored. The SPO will continue projections of studies and prototype e il standards and future changes to the civil standards leading to free flight. This project sealonn systems. No existing program satisfies the requirements of the GATM initiatives.	rogram desi ntion Warfar fobility Con equirements, necessary e d unmannec nications, n igurable coc I be explore nd future ch	gned to mee re (NAVWA), developing equipment a la aerial vehi avigation, such the SPO anges to the spoaran ring program	at the evolvin AR) are majo Control (GA); aircraft sys and aircraft coles. For tharveillance, ionics test bowill continue civil stands.	ng aviation r or componen (TO/MC2) Sitem architec apability she ose capability and safety pued (RCAT) vue projection ards leading re requiremen	equirements ts of the AF ystem Programers, acquii ortfalls acros ies where no rogram offic was develop is of studies to free flight of sof the G,	s of the Interaction of the Interaction of the Interaction of the Air Forcerent solution of the Interaction	national Civi cess, Naviga SPO) suppor equipment, rce inventory ution exists, itate develop e capabilities pe efforts nee cct supports t	Aviation tion, and Safety is GATM as the and certifying , for mobility, development ment, integration, sof avionics to ressary to ensure he definition of
<u> </u>	EY 1999 (\$ in Thousands) \$2,161	stem architecture definition erational requirements anal quisition of ID/IQ aviation ototype developments and the velopment of a GATM con v/Safety and GPS/NAVWA al	s, developme ysis, demons equipment he expansion figurable coc tR integratior tR integratior s, developme ysis, demonst	nt, and certi tration, and of dual-use kpit and avia 1 and interop nt, and certi ration, and of	fication evaluation technologie onics test be oreability ev fication evaluation technologie	s ed (RCAT) aluations					
() L	51,426 Project 674689	Development of a GATM configurable cockpit and avionics test bed (RCAT) Page 3 of 17 Pages	igurable coc	cpit and avid	nd avionics test bec Page 3 of 17 Pages	d (RCAT)			EX	ıibit R-2A (F	Exhibit R-2A (PE 0305099F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	r ITEM	JUSTIFI	CATION	SHEET (I	R-2A Exh	libit)	Δ	DATE February 2000	2000
800 07	вирвет астилту 07 - Operational System Development	pment			PE NUMBER AND TITLE 0305099F Globs	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	\ir Traffic I	Manageme	nt (GATM)	PROJECT 674689
9	A. Mission Description Continued									
9333	FY 2000 (\$ in Thousands) Continued \$203 Acquisition of ID/IQ aviation e \$115 Nav/Safety and GPS/NAVWA) \$6,402 Total	TD/IQ avi		ent eation and inter	quipment R integration and interoperability evaluations	aluations				
555555	\$1,322 System architecture definitions, \$1,322 Operational requirements analys \$2,786 Prototype developments and the \$2,714 Development of a GATM confit \$207 Nav/Safety and GPS/NAVWAR	ecture defi quirement elopments of a GATI TD/IQ avi	System architecture definitions, development, and certification Operational requirements analysis, demonstration, and evaluation Prototype developments and the expansion of dual-use technologi Development of a GATM configurable cockpit and avionics test the Acquisition of ID/IQ aviation equipment	development, and certification sis, demonstration, and evaluati expansion of dual-use technologurable cockpit and avionics terpuipment	System architecture definitions, development, and certification Operational requirements analysis, demonstration, and evaluation Prototype developments and the expansion of dual-use technologies Development of a GATM configurable cockpit and avionics test bed (RCAT) Acquisition of ID/IQ aviation equipment Nav/Safety and GPS/NA VWAR integration and interoperability evaluations	i d (RCAT)				
33	8(topomera or					
9	B. Project Change Summary None									
9	C. Other Program Funding Summa E)	nary (\$ in T FY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to	Total Cost
53	AF RDT&E Other APPN									
<u> </u>		9,700	22,600	129,937	195,268	217,337	163,120	2,385		740,347
	Modernization Program, PE 0401119F									
<u> </u>	RDT&E, AF, BA-7, C-5 AMP, PE 0401119F, C-5 Airlift Squadrons	33,594	44,172	30,084	7,295					118,685
9	Aircraft Procurement, AF, BA-5, C-5, 8.33 radio,	1,875								15,197
ᄔ	Project 674689			Page	Page 4 of 17 Pages				Exhibit R-2A (PE 0305099F)	E 0305099F)

L	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEN	1 JUSTIFI	CATION	SHEET (F	3-2A Exh	libit)		DATE February 2000	, 2000
8UD 07	вирсет астіvіту 07 - Operational System Development	elopment			PE NUMBER AND TITLE 030509F GIODS	AND TITLE	Vir Traffic	Managem	ытпе Global Air Traffic Management (GATM)	PROJECT 674689
(D)	C. Other Program Funding Sum	mary (S in T FY 1999 Actual	housands) EY 2000 Estimate	EY 2001 Ferimate	FY 2002 Fertimate	FY 2003 Fetimate	FY 2004 Fetimate	FY 2005 Fertimate	Cost to	Total Cost
	PE0401119F	TENNA 7	Ammun Co	Amunica	A DITTO	Amminer	Samuasz	Applither	AVAIDITIANA	
<u>(</u>	Aircraft Procurement, AF, BA-5, C-9 GATM, PE			4,635	6,875	6,825				18,335
<u>(C</u>	Aircraft Procurement, AF, BA-5, C-9 RVSM, PE	3,753	4,413	2,680						13,846
<u>(D</u>	Aircraft Procurement, AF, BA-5, C-9 TAWS, PE 0401314F	2,151	2,989	1,765						6,905
<u>(2</u>		3,254								11,654
<u>5</u>		288								2,324
<u>G</u>		18,765	23,609	22,255	29,102	13,503				107,234
<u>5</u>	Aircraft Procurement, AF, BA-5, KC-10 ADS Broadcast Datalink, PF, 0401219F			3,520	2,232	6,164	3,142	1,833		16,891
<u>(</u>	Aircraft Procurement, AF, BA-5, KC-10 TCAS/TAWS, PF 0401210F	15,648	13,231	6,000						41,179
<u>(3</u>	Aircraft Procurement, AF, BA-5, C-17 8.33 radio, PE 0401130F									25,345
٦	Project 674689			Page	Page 5 of 17 Pages				Exhibit R-2A (PE 0305099F)	E 0305099F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SET ITEN	1 JUSTIF	ICATION	SHEET (R-2A Exh	ibit)		DATE February 2000	y 2000
80D(07 -	BUDGET ACTIVITY 07 - Operational System Development	velopment			PE NUMBER AND TITLE 030509F GIODS	AND TITLE F Global ≠	\ir Traffic	Managem	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT 674689
9	(U) C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	mmary (\$ in] FY 1999 Actual	Chousands) EY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	EX 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	Complete	Total Cost
9	Aircraft Procurement, AF, BA-5, C-17 HFDL, PE			3,150	3,150					6,300
5	Aicraft Procurement, AF, BA-5, C-17 GPS Integrity Monitoring Capability, PE 0401130F	10,804	12,225	1,863						25,541
9	Aircraft Procurement, AF, BA-5, C-17 PLSR, PE									17,186
9	Aircraft Procurement, AF, BA-5, C-17 ADS Upgrade, PE						20,000	10,200	21,700	51,900
<u>(</u>	Aircraft Procurement, AF, BA-5, C-17 RNP-4, PE			2,622	2,622					5,244
<u> </u>	Aircraft Procurement, AF, BA-5, C-17 TAWS, PE			343	14,571	21,496	7,094			43,504
9	Aircraft Procurement, AF, BA-5, C-17 GATM PE		25,600	38,400	12,800					76,800
<u>(c</u>	Aircraft Procurement, AF, BA-5, C-20 GATM, PE			7,390	211	1,953				9,554
<u>(5)</u>	Aircraft Procurement, AF, BA-5, C-20 TAWS, PE 0401314F	229	3,119	4,800	6,000					15,650
Ω.	Project 674689			Pag	Page 6 of 17 Pages				Exhibit R-2A (PE 0305099F)	PE 0305099F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	GET ITEN	JUSTIF	CATION	SHEET (I	R-2A Exh	libit)	Δ	DATE February 2000	2000
BUC 07	вирсет астіvіту 07 - Operational System Development	evelopment			PE NUMBER AND TITLE 030509F Globs	_	\ir Traffic I	Manageme	Air Traffic Management (GATM)	PROJECT 674689
(D)	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 1999 Actual Estimate	ummary (\$ in T FY 1999 Actual	housands) EX 2000 Estimate	EY 2001 Fetimate	FY 2002 Estimate	FY 2003 Fetimate	EY 2004 Fedimate	EY 2005 Estimate	Cost to	Total Cost
<u>(5</u>	Aircraft Procurement, AF, BA-5, C-20 TCAS, PE	2,720						Application		4,284
9		57,450	8,627	6,717	9,470	2,964	1,645	1,645		94,415
5			200							7,805
9	• • • •	2,623	7,787		648	911				11,058
<u>(5)</u>			315							3,235
5				6,572	2,296	7,546				16,414
9							1,743	6,500		11,325
9	–	1,636								7,711
5				3,072	3,459		3,653	2,866		13,050
	Project 674689			Page	Page 7 of 17 Pages				Exhibit R-2A (PE 0305099F)	= 0305099F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	GET ITEM	JUSTIFI	CATION	SHEET (I	R-2A Exh	ibit)	DA	DATE February 2000	, 2000
90 04	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 030509F Globa	_	ir Traffic I	Air Traffic Management (GATM)	nt (GATM)	PROJECT 674689
Ð	C. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 1999 Actual Estimate	mmary (\$ in T EX 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	EY 2004 Estimate	EY 2005 Estimate	Cost to	Total Cost
<u>(5)</u>	Aircraft Procurement, AF, BA-5, C-130 Flight Data									5,737
<u>5</u>		2,754	38,572	61,035	61,371	211,234	181,910	276,229	3,103,495	3,938,425
9		16,154	10,323	3,500	5,350	5,800	5,800	5,800		70,103
9			16,613	67,200						83,813
9		24,103	15,224	1,050						43,577
9		48,398	29,631	86,495	225,857	215,172	147,435	57,117	203,084	1,013,189
9		27,687	47,392	40,034	16,371					141,484
9		8,932	19,383	9,439	8,788					92,708
9		9,852	13,808	33,308	20,691	11,853				104,170
	Project 674689			Page	Page 8 of 17 Pages				Exhibit R-2A (PE 0305099F)	E 0305099F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	GET ITEN	JUSTIF	CATION	SHEET (R-2A Exh	libit)		DATE February 2000	, 2000
BUE 5	BUDGET ACTIVITY	a card of ox			PE NUMBER AND TITLE	AND TITLE	ir Troffic		THE VERY	PROJECT 674690
让	V - Operational System Development	avelopine.			020202		וו וומווני	Mallagelli	Giobal All Traille Mailagement (GATM)	074003
3	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	mmary (\$ in T FY 1999	housands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
9	Aircraft Procurement, AF,	129,515	170,657	71,550						659,861
	BA-5, C-135 Pacer CRAG, PF 0401218F									
5										4,281
<u> </u>										`
			(1
9		23,656	9,357							47,063
	BA-5, C-141 1CAS, FE 0401118F									
3							24,000	72,000		000'96
<u> </u>										
9	Aircraft Procurement, AF,						789	2,300		3,089
	BA-5, E-3 GATM, PE									
9		300	256							1,232
	BA-5, E-4 8.33 radio, PE									
9	Aircraft Procurement, AF, BA-5, E-4 TCAS, PE	1,482	1,166	1,166						8,014
	0302015F									
9	·	1,300	1,300	2,500						8,622
	BA-5, E-4 TAWS, PE									
9	•						6,731	20,500		27,231
	BA-5, E-4 GATM, PE 0302015F									
9		359	364	364						1,087
	Project 674689			Pag	Page 9 of 17 Pages				Exhibit R-2A (PE 0305099F)	E 0305099F)

PENNUMBER AND TITLE		RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEN	A JUSTIF	CATION	SHEET (I	R-2A Exh	libit)		DATE February 2000	y 2000
· · · · · · · · · · · · · · · · · · ·	8UB 07	юет астипт - Operational System Deve	lopment			PE NUMBER 0305099	AND TITLE F Global A	\ir Traffic I	Managem	ent (GATM)	PROJECT 674689
Č.	<u>(c)</u>	ł	mary (\$ in 7 FY 1999 Actual	[housands] FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Š.	Ę						, 53	030 20	000		636.60
· · · · · · · · · · · · · · · · · · ·	9						3,273	755,17	27,178		83,333
· · · · · · · · · · · · · · · · · · ·	<u>(5)</u>		,					23,700	45,300		69,000
, č	9		596								965'6
Č	<u>5</u>				6,159	240	300	540			7,239
ດັ	9										1,750
Ţ.	<u>(</u>							10,000	25,000	40,000	75,000
Č	5	Aircraft Procurement, AF, BA-5, C-12 FDR/CVR, PE	1,447								9,047
Ž.	9	Aircraft Procurement, AF, BA-5, C-12 TAWS, PE 0401314F	950	1,578	1,462						3,990
Page 10 of 17 Pages	ව		Architecture n and certifi rface with a	acquisition str. cation of USA ppropriate proc	ategy enables t F platforms/sy. luct/support ce opment Agreeı	he GATO/MC: stems that oper nters, battle lal nents (PRDAs)	2 SPO to guide ate in the natic 3s, and Departi), Cooperative	e equipment ac mal and global ment of Defen: Research and	quisition supplair traffic en se (DOD) ress	oorting global air tr vironments. The S sarch and developn Agreements (CRL	affic operations. PO will also nent facilities in As), and
	ı	Project 674689			Page	: 10 of 17 Page	S			Exhibit R-2A (PE 0305099F)	PE 0305099F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	I SHEET (R-2A Exhibit)	DATE February 2000
вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	PROJECT PROJECT (GATM) 674689
(U) D. Acquisition Strategy Continued Indefinite Quantity (ID/IQ) contracts will be competitively awarded.	ely awarded.	
(U) E. Schedule Profile		
I	EY 1999 EY 2000 2 3 4 1 2 3	FY 2001 4 1 2 3 4
(U) System Architecture Definitions *	×	
Operational Requirements Analysis	×	×
(U) Prototype Development Contract Awards **	*	
	×	×
	*	×
X Denotes Scheduled Event		
Project 674689	Page 11 of 17 Pages	Exhibit R-2A (PE 0305099F)
	77.7	

Property		RDT&E PROGRAM ELEMENT	SAM ELE	MENT/PR	I/PROJECT COST BREAKDOWN (R-3)	OST BE	REAKDO!	WN (R-3)		DATE Fe	February 2000	000
Project Cost Breakdown (S in Thousands) Project Breakdow		GET ACTIVITY - Operational System D	evelopmer	jt.		PE NUMBE 030509		Air Traffi	c Manage	ment (GA		PROJECT 674689
System architecture definitions, development, and certification Activation L11292 L1.0204	(D)	A. Project Cost Breakdown (s in Thousand	(§				1 /24	9)0C ANA	9	1000 281
1,124 1,12	4.5		1	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	!			₹] [°]	666	EX 200	≅ 1 ⊲	EX 2001
Operational requirements at analysis, demonstration, and evaluation Operational requirements and evaluation 1788 975 Production requirements and the expansion of dual-use technologies 7,557 2,534 2,534 Development of D/IQ avaiton expinsion of dual-use technologies 7,577 1,426 1,15 Development of a GATM configurable cockpit and avionits test bed (RCAT) 2,279 1,426 1,15 Nav/safety and GPS/NAVWAR integration and interoperability evaluations 2,279 1,426 1,15 Total Budget Acquisition History and Planning Information (S in Thousands) 2,278 6,402 1,15 Ecforming Oremand Organization Acquivity Acathory EAG EAG 1,719 2,095 Confined EAG Activity Vehicle Date EAG 1,719 2,095 Continuing Activity Vehicle Date EAG EAG 1,719 2,095 Continuing Allied Signal DIQ Nov 98 TBD TBD 1,975 1,61 0 0 Allied Signal DIQ Nov 98 TBD	9	System architecture demnitions	, development,	and certification	nc .			,	101	1,12	7	1,322
Acquisition of IDMO avainon equipment Prototype developments and the expansion of datal-use technologies Development of a GATIM configurable cockpit and avoincis test bed (RCAT) Nav/Safety and GPS/NAVWAR integration and interopenability evaluations Nav/Safety and GPS/NAVWAR integration and interopenability evaluations B. Badget Acquisition History and Planning Information (S in Thousands) B. Badget Acquisition History and Planning Information (S in Thousands) B. Badget Acquisition History and Planning Information (S in Thousands) B. Badget Acquisition History and Planning Information (S in Thousands) B. Badget Acquisition History and Planning Information (S in Thousands) B. Badget Acquisition History and Planning Information (S in Thousands) Contract Contract Contract Contract Activity Activi	9	Operational requirements analy	/sis, demonstra		ation			.	788	76	5	1,358
Prototype developments and the expansion of dual-use technologies Prototype developments and the expansion of dual-use technologies Prototype developments and the expansion of dual-use technologies 2,554 1,426 1,426 Nav/Safety and GPS/NAVWAR integration and interoperability evaluations: Total 1,812 1,812 1,156	9	Acquisition of ID/IQ aviation e	equipment						192	20	3	207
Development of a CATM configurable cockpit and avionics test bed (RCAT) Page 1 1,415 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,426 1,12 1,15 1,1	9	Prototype developments and th	e expansion of	dual-use techn	ologies			7,	557	2,55	4	2,786
Part Safety and ClPS/NAVWAK integration and interoperability evaluations 1,812 1,812 1,1812	9	Development of a GATM conf	igurable cockp	it and avionics	test bed (RCAT)			.6	270	1,42	9	2,714
Exponent Accounisation History and Planning Information (S in Thousands) Exponential Contractor or Government Contractor or Government Method/Type Activity Activit	33	Nav/Safety and GPS/NAVWA Total	R integration a	nd interoperabi	lity evaluations			1,22,	812 780	11 6,40	5 2	121 8,508
Performing Organizations: Contractor or Contractor or Contractor or Contractor or Contractor or Exhibit Contractor or CPAF o	9	B. Budget Acquisition History	y and Planning	Information	(\$ in Thousands	ଜ						
Contractor of Government Contractor of Government Contractor of Government Project <	9	Performing Organizations:										
Method/Type Award or Performing Project Budget Budget Budget Budget Budget Budget Budget Budget Complete Subhicle Complete			Contract									
OFFunding Obligation Activity Office Activity EAC In FY 1999 FY 2000 FY 2000 EX 2001 Complete SPP Nov 98 TBD TBD TBD 0 2,642 1,719 2,095 Continuing UDIQ Nov 98 TBD TBD TBD 0 2,499 0			Method/Type	Award or	Performing	Project						
Vehicle Date EAC EA			or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
Proper Diganizations Per			<u>Vehicle</u>	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
FFP Nov 98 TBD TBD TBD 0 1,900 350 421 Continuing IDIQ Nov 98 TBD TBD TBD 0 2,642 1,719 2,095 Continuing mman CPAF Feb 99 TBD TBD 0 2,499 0		Product Development Organiza	tions									
DIQ Nov 98 TBD TBD TBD 0 2,642 1,719 2,095 Continuing mman CPAF Feb 99 TBD TBD 0 2,499 0 0 0 ins IDIQ Nov 98 TBD TBD 0 978 512 582 Continuing ration CPAF Oct 98 TBD TBD 0 4,163 678 934 Continuing mology Inc IDIQ Feb 99 TBD TBD 0 2,429 812 975 Continuing CPFF Jan 99 TBD TBD 728 0			7FP	Nov 98	TBD	TBD	0	1,900	350	421	Continuing	TBD
uman CPAF Feb 99 TBD TBD 0 1,975 1,654 1,973 Continuing uman CPAF Feb 99 TBD TBD 0 978 512 582 Continuing ration CPAF Oct 98 TBD TBD 0 4,163 678 934 Continuing mology Inc IDIQ Feb 99 TBD TBD 0 2,429 812 975 Continuing CPFF Jan 99 728 728 0 728 0			DIQ	Nov 98	TBD	TBD	0	2,642	1,719	2,095	Continuing	TBD
nman CPAF Feb 99 TBD TBD TBD 0 2,499 0 0 0 ins IDIQ Nov 98 TBD TBD TBD 0 4,163 678 512 582 Continuing ration CPAF Oct 98 TBD TBD TBD 0 2,429 812 975 Continuing mology Inc IDIQ Feb 99 TBD TBD TBB 0 2,429 812 975 Continuing FFP July 99 840 840 0 728 0 0 0 0 0 0 FFP July 99 840 840 0 750 0 750 0 <th< td=""><td></td><td></td><td>DIQ</td><td>Nov 98</td><td>TBD</td><td>TBD</td><td>0</td><td>1,975</td><td>1,654</td><td>1,973</td><td>Continuing</td><td>TBD</td></th<>			DIQ	Nov 98	TBD	TBD	0	1,975	1,654	1,973	Continuing	TBD
ins IDIQ Nov 98 TBD TBD TBD 0 978 512 582 Continuing 1 ration CPAF Oct 98 TBD TBD 0 4,163 678 934 Continuing 1 mology Inc IDIQ Feb 99 TBD TBD 0 2,429 812 975 Continuing 1 CPFF Jan 99 728 728 0			CPAF	Feb 99	TBD	TBD	0	2,499	0	0	0	2,499
ration CPAF Oct 98 TBD TBD 0 4,163 678 934 Continuing 7 mology Inc IDIQ Feb 99 TBD TBD 0 2,429 812 975 Continuing 7 CPFF Jan 99 728 728 0 0 0 0 0 FFP July 99 840 840 0 840 0			DIQ	Nov 98	TBD	TBD	0	826	512	582	Continuing	TBD
mology Inc IDIQ Feb 99 TBD TBD 0 2,429 812 975 Continuing 7 CPFF Jan 99 728 728 0 728 0 0 0 0 FFP July 99 840 840 0 6 0<			CPAF	Oct 98	TBD	TBD	0	4,163	829	934	Continuing	TBD
CPFF Jan 99 728 728 0 728 0 0 0 FFP July 99 840 840 0 840 0 0 0 0 FFP Sep 99 750 729 0 729 0 0 0 0 Oxiates FFP Feb 99 729 729 0		ns Technology Inc		Feb 99	TBD	TBD	0	2,429	812	975	Continuing	TBD
FFP July 99 840 840 0 840 0				Jan 99	728	728	0	728	0	0	0	728
FFP Sep 99 750 750 0 750 0 0 0 0 ociates FFP Feb 99 729 729 0 729 0		IC Inc		July 99	840	840	0	840	0	0	0	840
ociates FFP Feb 99 729 729 0 0 0 UNK Sep 99 500 500 0				Sep 99	750	750	0	750	0	0	0	750
UNK Sep 99 500 500 0 0 0 0 IDIQ Feb TBD TBD 0 350 135 203 Continuing T Services FFP Aug 99 300 0 0 0 0 0 Page 12 of 17 Pages Pages 12 of 17 Pages Exhibit R-3 (PE 0305099) Exhibit R-3 (PE 0305099) Exhibit R-3 (PE 0305099)				Feb 99	729	729	0	729	0	0	0	729
IDIQ Feb TBD 0 350 135 203 Continuing T Services FFP Aug 99 300 0				Sep 99	200	200	0	200	0	0	0	200
Services FFP Aug 99 300 300 0 0 0 0 0 Page 12 of 17 Pages Page 12 of 17 Pages Exhibit R-3 (PE 0305099)			DIQ	Feb	TBD	TBD	0	350	135	203	Continuing	TBD
Page 12 of 17 Pages			'FP	Aug 99	300	300	0	300	0	0	0	300
	n.	Project 674689			Page 1	12 of 17 Pa	ges			Exhib	it R-3 (PE 0	305099F)

BUDGET ACTIVITY O7 - Operational System Development (U) Performing Organizations Continued: Product Development Organizations Various various various Support and Management Organizations		USI DRE	AKDOV	/PROJECT COST BREAKDOWN (R-3)		Ľ	February 2000	00
Performing Organizations Continued: Product Development Organizations Various Support and Management Organizations		PE NUMBER AND TITLE 030509F Globs	AND TITLE Global	Air Traffic	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	ment (G/		РРОЈЕСТ 674689
Support and Management Organizations	TBD	TBD	0	968	191	903	Continuing	TBD
MITRE Corporation CPAF Oct 99 Various Various Various	TBD TBD	TBD	0 864	477 624	215 136	218	Continuing Continuing	TBD
Subtotals Subtotal Product Development		H의	Total Prior to FY 1999 0	Budget FY 1999 21,679	Budget FY 2000 6,051	Budget FY 2001 8,086	Budget to Complete TBD	Total Program TBD
Subtotal Test and Evaluation Total Project			864	22,780	6,402	8,508	TBD	TBD
Project 674689	Page	Page 13 of 17 Pages	10			Exhi	Exhibit R-3 (PE 0305099F)	305099F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JSTIFIC/	VIION	SHEET	(R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDG	BUDGET ACTIVITY			PE NUMBE	PE NUMBER AND TITLE		:			PROJECT
<u>;</u>	07 - Operational System Development			3600000	USUSUSSE GIODAL AIR TRATTIC MANAGEMENT (GATIM	al Allr Ira	TIC Man	naement	(GAIM)	0/4090
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674690	0 GATM Integration	2,102	0	0	0	0	0	0	0	2,102
(1)	A. Mission Description 4690: GATM Integration [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two C-130 modernization efforts and minimizes down time. Realigning under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria. Effort includes engineering design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99 includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives.	Air Force Sp FSOC C-130s the C-130 Av the overall C ne. Realignii The MMR I fications ena sign, and kit I nvolves chan neering designiitatives.	ecial Opera i. GAO rec rionics Moc 130 AMP. ng under the nay incorpo ble the MC- proofing. T ging the coc ii. In accorc	tions Commonded to demization P. Using GAT Using GAT as C-130 AM orate a Micro He MC-130F de, testing the dance with G	and (AFSO) the Air Force Trogram (AN M integratif P provides N wave Landi ther AFSOC I and other ? e changes, a	C) funded a and the combine election of the combine election of the combine election of the combine of the comb	separate Mu ements of A integration the C-130 A raffic Alert a MLS), Prote comply with rations Force software do FY00 and FY	Iti-Mode Re accurately roaccurately rom MP elimina nd Collision cted Instrum changing IC (SOF) aircumentation (VOI GATM)	ceiver (MMR mnon Avioni effects the aptes the reduning Avoidance Sient Landing AO airspace craft have high and mainten Integration fi	cs Architecture cs Architecture plication of tancy of two system (TCAS) to System and access criteria. hly unique and ance technical anding was
56565	FY 1999 (\$ in Thousands) \$1,064 Systems engineering \$745 Software engineering \$293 Management and Support \$2,102 Total									
999	FY 2000 (\$ in Thousands) \$0 No Activity \$0 Total									
333	FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total									
P	Project 674690		Page	Page 14 of 17 Pages	GS			Û	chibit R-2A (Exhibit R-2A (PE 0305099F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEN	1 JUSTIFI	CATION	SHEET (3-2A Ext	nibit)		DATE	February 2000	7 2000
BUD 07	вирсет астилту 07 - Operational System Development	relopment	المد		PE NUMBER AND TITLE 0305099F Globs	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	Air Traffic	c Manage	ement	(GATM)	PROJECT 674690
(£)	B. Project Change Summary AFSOC GATM Integration funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP.	ng has been a Y01 funds we	pplied against 1 re transferred t	the C-130 Avid	onics Moderniz MP.	ation Progran	n (AMP). F	w spunt 66Y	/ill be us	ed to begin des	ign engineering
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	FY 1999 Actual	Chousands) EY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	25 ate	Cost to Complete	Total Cost
999	AF RDT&E Other APPN Aicraft Procurement, AF, BA-5, C-130 Avionics Modernization Program, PE 0401115F	100	55,000	74,480	77,392	224,757	192,531		88	1,539,700	2,437,778
9	D. Acquisition Strategy 4690: The integration acquisition strategy for AFSOC communication/navigation modifications enables the GATO/MC2 SPO to use existing contracts, when possible, to assist in the technical design and integration. The modifications will be accomplished under the SOF Integrated Weapons System Support Program (IWSSP) contract.	ı strategy for . d integration.	AFSOC comm	unication/navi _i	gation modifice	itions enables der the SOF I	the GATO/! ntegrated W.	MC2 SPO to eapons Syste	use exis em Supp	sting contracts,	when possible, WSSP) contract.
<u>(i)</u>	E. Schedule Profile			1	FY 1999 2 3	4	되 ~	FY 2000 2 3	4	$\frac{\mathrm{FY}}{1}$	FY 2001
(£)	N/A			•	i I		1	1			
Щ	Project 674690			Page	Page 15 of 17 Pages	S			யி	Exhibit R-2A (PE 0305099F)	E 0305099F)
					1321						

	RDT&E PROGRAM ELEMENT		/PROJECT CC	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
ii 6	вирсет астіvіту 07 - Operational System Development	ənt		PE NUMBER AN 030509F	PE NUMBER AND TITLE 0305099F Global	Air Traffic	ыртіті Global Air Traffic Management (GATM)	nent (GA		РРОЈЕСТ 674690
9	A. Project Cost Breakdown (\$ in Thousands)	(spr				FY 1999	666	FY 2000	c	FY 2001
5555	Software engineering System engineering Management and Support Total					1,(2,2 2,1	745 1,064 293 2,102		я	
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	<u>ng Informatio</u>	n (\$ in Thousands	g G						
<u> </u>	Contractor or Contract Government Method/Type Performing Vehicle Product Development Organizations TBD Support and Management Organizations WR-ALC/LU TBD ASC/LU TBD TBD ASC/LU TBD TBD TBD TBD TBD TBD TBD TBD TEST and Evaluation Organizations Contract Method/Type Or Funding Description Vehicle Product Development Property TBD Support and Management Property TBD Support and Management Property TBD Support and Evaluation Property TBD	Award or Obligation Date Dec 98 Cobligation Date	Performing Activity EAC Delivery Date	Project Office EAC 1,747	Total Prior to FY 1999 0 0 0 Total Prior to FY 1999	Budget FY 1999 1,814 188 100 EY 1999	Budget FY 2000 Budget FY 2000	Budget FY 2001 Budget FY 2001	Budget to Complete 0 Budget to Complete	Total Program 1,814 188 100 100 Program Program
	Project 674690		Page]	Page 16 of 17 Pages	ges			Exhibi	Exhibit R-3 (PE 0305099F)	305099F)

RDT&E PROGRAM ELEMENT/PRO	I/PROJECT COST BREAKDOWN (R-3)	NN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)	Air Traffi	c Manager	nent (GA		PROJECT 674690
	Total Prior	Budget	Budget	Budget	lget to	Total
Subtotals Subtotal Source for SBIP	10 F X 1999	FX 1999	FX 2000	FY 2001	Complete	Program
Subtotal Product Development	0	1.814			0	1.814
Subtotal Support and Management	0	288			0	288
Subtotal Test and Evaluation						
Total Project	0	2,102			0	2,102
			,			
Project 674690	Page 17 of 17 Pages			Exhibi	Exhibit R-3 (PE 0305099F)	05099F)

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RDT&E BUDGET ITEM JU	JUSTIFIC	ATION	ISTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 107 - Operational System Development			PE NUMBEF 0305110	PE NUMBER AND TITLE 0305110F Satell	PE NUMBER AND TITLE 0305110F Satellite Control Network	ol Netwo	ırk		PROJECT 673276
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673276 Satellite Control Network	45,343	60,977	56,643	97,504	41,450	32,640	33,657	33,657 Continuing	ТВО
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Modernization efforts in command & control, communications, and range elements of the AFSCN will ensure DoD space systems are operationally ready to support the This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability tracking operations in support of all major US launches. Air Force Space Command (AFSPC) performs operations and maintenance and Air Force Materiel Command (AFMC) performs modernization and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). The Air Force Satellite Control Network (AFSCN) mission is to fly operational USAF and other DoD satellites. The AFSCN also provides launch and early orbit to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems. Improvement and CINCs' warfighting requirements.

control, communications, and range systems required to support the nation's surveillance, navigation, communications, and weather satellite operations. The AFSCN is Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program the DoD common user network that provides satellite state-of-health, tracking, telemetry, and commanding (TT&C) for the following operational satellite systems: The AFSCN is a global infrastructure of control centers, remote tracking stations (RTSs), and communications links that provide the highly reliable command and (DSP), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Skynet, NATO III/IV, and classified programs.

equipment with more reliable, maintainable and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with AFSCN Improvement and Modernization (I&M): AFSCN I&M is an ongoing program of replacements and upgrades which will replace non-standard, unsupportable fewer, less skilled personnel and will significantly reduce hardware/software maintenance costs. The principal efforts within this program are: Network Operations Upgrades, Communications Upgrades, and Range Upgrades.

Analysis Subsystem (OAS) is a Year 2000-compliant replacement of the collision avoidance functions currently residing at Onizuka AS. The OAS will be installed at NETWORK OPERATIONS UPGRADES: The current manpower intensive scheduling system to deconflict and allocate network TT&C assets to support operational space vehicles was replaced with Electronic Schedule Dissemination (ESD), a Year 2000-compliant system which performs network resource scheduling. The Orbit

Project 673276

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Page 1 of 7 Pages

Exhibit R-2 (PE 0305110F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SI	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
- 20 Dana	вирсет Астіліту 07 - Operational Sy s	PET ACTIVITY - Operational System Development 0:	PE NUMBER AND TITLE 0305110F Satellite Control Network	PROJECT 673276
(D)	A. Mission Description Continued Schriever AFB CO. Both the ESD a operations, and automation. Comme AFSPC's operational requirements.	nd OAS offer the precial off-the-shelf	ootential for reducing satellite control O&M costs through enhanced commonality and standardization, simplified (COTS) hardware and software will be procured for the upgrades. The software portions will be modified to meet	ality and standardization, simplified are portions will be modified to meet
	COMMUNICATION that integrates govern modernize the comm equipment with auton performing multiplexi provide increased cap	COMMUNICATIONS UPGRADES: This effort will transition the current, costly point-to-point AFSCN communications network to a communications grid system that integrates government and commercial networks as technology becomes available. Several standardization efforts are being implemented to improve and modernize the communications and ground segment elements of the AFSCN, including: Archival recording systems to replace obsolete, manpower-intensive analog equipment with automated, standardized digital COTS systems; Wide Area Network Interface Units (WANIU) which standardize hardware and reduce O&M costs for performing multiplexing functions in the AFSCN, as well as provide an Asynchronous Transfer Mode (ATM) interface; and Operational Switch Replacement (OSR) to provide increased capacity, reliability, data quality, and user access.	transition the current, costly point-to-point AFSCN communications network to a communications grid system s technology becomes available. Several standardization efforts are being implemented to improve and ements of the AFSCN, including: Archival recording systems to replace obsolete, manpower-intensive analog systems; Wide Area Network Interface Units (WANIU) which standardize hardware and reduce O&M costs feel as provide an Asynchronous Transfer Mode (ATM) interface; and Operational Switch Replacement (OSR) user access.	to a communications grid system plemented to improve and olete, manpower-intensive analog urdware and reduce O&M costs for ional Switch Replacement (OSR) to
	RANGE UPGRADES standardize the remote and sustainment costs.	RANGE UPGRADES: This effort will upgrade the current Automated Remote Tracking Station (ARTS) and other Range assets. Several integrated projects will standardize the remote tracking stations, upgrade and/or replace outdated equipment in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs.	Tracking Station (ARTS) and other Range assets. Snent in order to reduce failures, correct operational c	everal integrated projects will leficiencies, and reduce operating
999	FY 1999 (\$ in Thousands) \$2,000 \$30,692 Cor	work Operations Upgrades: nmunications Upgrades: cor NIU installation at RTSs and	completed development of ESD/Automated Scheduling Tool for Range Operations (ASTRO) and the OAS. Itinued developing Archival Recorder System; continued developing Operational Switch Replacement; supple Operational Control Nodes (OCNs).	ations (ASTRO) and the OAS.
5 5	\$12,651 \$45,343	Network Integration and Systems Engineering: continued system engineering and integration of hardware/software to meet evolving satellite program requirements at OCNs and Remote Tracking Stations (RTSs). Total	1 system engineering and integration of hardware/so tions (RTSs).	ftware to meet evolving satellite
9999	EY 2000 (\$ in Thousands) \$5,164 Net \$31,228 Con \$15,478 Ran Ofti	work Operations Upgrades: nmunications Upgrades: conge Upgrades: begin Control ne modernization effort to sta SCN architecture of emerging anization	begin OAS follow-on development to continue to upgrade the radio frequency interference (RFI) capabilities. timue OSR development; complete WANIU and archival recorders. and Status (C&S) Processor Upgrade development to continue the ARTS modernization effort; as a continuation andardize hardware and software, begin Standards Protocol requirements definition effort to address impact on g space communications protocols being examined by DOD, NASA, and the International Standards	y interference (RFI) capabilities. odernization effort; as a continuation nition effort to address impact on International Standards
<u>(3</u>	\$9,107	Network Integration and Systems Engineering: continue system engineering and integration of hardware/software to meet evolving satellite	system engineering and integration of hardware/soff	ware to meet evolving satellite
α.	Project 673276	Page 2 o	Page 2 of 7 Pages	Exhibit R-2 (PE 0305110F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	t)	DATE February 2000	y 2000
91 07	вирдет Астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305110F Satellite Co	⊌ਹ ਸπ∟E Satellite Control Network		PROJECT 673276
Θ	A. Mission Description Continued				
9	FY 2000 (\$ in Thousands) Continued				
9	\$60,977 Total				
99	FY 2001 (\$ in Thousands) \$2,374 Network Operations Upgrades: complete development of OAS follow-on capability.	t of OAS follow-on capability.			
9		ent; begin Defense Information able external users to connect to	System Network () the AFSCN through	DISN)-ATM connectivity th DISN.	y development
9	\$20,266 Range Upgrades: continue Standards Protocol development; continue C&S Processor Upgrade development; begin effort to upgrade the Automated Remote Tracking Stations (ARTS) Space/Ground interface upgrade as a continuation of the ARTS modernization effort.	pment; continue C&S Processor Ground interface upgrade as a co	 Upgrade developn ontinuation of the / 	nent; begin effort to upgr \text{\text{RTS} modernization effo}	ade the
9	\$9,832 Network Integration and Systems Engineering: continue system engineering and integration of hardware/software to meet evolving satellite	ue system engineering and integ	gration of hardware	s/software to meet evolvii	ng satellite
9	\$56,643 Total				
9	B. Budget Activity Justification This effort is in Budget Activity 7, Operational System Development, because	Development, because it supports a fielded system.			
3	C. Program Change Summary (\$ in Thousands)				
5	Previous President's Budget (FY 2000 PBR)	<u>FY 1999</u> 55.812	EY 2000 61.918	FY 2001 85.064	Total Cost TBD
3	Appropriated Value	56,622	61,918		
9	Adjustments to Appropriated Value		,		
	a. Congressional/General Reductions b. Small Business Innovative Research	-810 -1 885	-123		
	c. Omnibus or Other Above Threshold Reprogram	700,1	-335		
	d. Below Threshold Reprogram	-8,330			
	e. Rescissions	-254	-483		
5	f. Other Adjustments to Budget Years Since FY 2000 PBR			-28.421	TBD
<u>3</u>	Current Budget Submit/FY 2001 PBR	45,343	226,09	56,643	TBD
	Project 673276	Page 3 of 7 Pages		Exhibit R-2 (PE 0305110F)	E 0305110F)

	RDT&E BUDGET ITEM JU	GET ITEN		ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)	۵	DATE February 2000	2000
BUD 07.	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305110F Satell	AND TITLE Satellite	PE NUMBER AND TITLE 0305110F Satellite Control Network	etwork		PROJECT 673276
3	C. Program Change Summary (\$ in Thousands) Continued	(\$ in Thousan	ds) Continue	751						
<u>(5)</u>	Significant Program Changes: FY99: Resource Management System (RMS) was restructured and descoped to provide AFSCN scheduling upgrades via the Electronic Schedule Dissemination (ESD) solution, and to provide collision avoidance functions at Schriever AFB through the Orbit Analysis Subsystem (OAS) solution. Antenna upgrade development funds were used for higher Air Force priorities, with antenna improvements now planned to be accomplished through a procurement-funded replacement program. FY01: A reduction of \$9,400 was due to underexecution in FY99 and expected excess carry-forward through FY00, and into FY01. A \$7,300 adjustment properly aligned funds to OPAF to purchase hardware for the OAS follow-on project. A reduction of \$11,200 delayed the asset consolidation and the resource scheduling upgrade by one year.	ystem (RMS) v avoidance fun riorities, with a ss due to under se hardware fo	was restructure ctions at Schri interna improvexecution in Franctine CAS follow	d and descope ever AFB thro ements now p Y99 and expec ow-on project.	nd to provide A wigh the Orbit. Idamed to be acted excess carried	FSCN schedul Analysis Subsy complished th ry-forward thre of \$11,200 dela	ling upgrades vystem (OAS) s rough a procu ough FY00, an	via the Electroniolution. Antercement-fundecid into FY01.	nic Schedule Dissen nna upgrade develol 1 replacement progr. A \$7,300 adjustmer and the resource sch	nination (ESD) pment funds am. t properly reduling
3	D. Other Program Funding Summary (S in Thousands)	nmary (\$ in T	housands)	EV 2001	EX 2000	2000	Anne Vin	300C X:1	1	C
<u>(</u> 2)	Other Procurement, AF; Budget Activity: 03, P-65; AFSCN	Actual 22,349	Estimate 31,314	Estimate 39,094	Estimate 39,750	Estimate 34,329	Extimate 37,533	Estimate 32,501	Complete Continuing	Lotal Cost TBD
9	E. Acquisition Strategy The primary objective of the AFSCN L&M program is to reduce the cost of satellite control operations while maintaining or improving reliability, maintainability, operability, and capability of current systems. A combination of performance-based specifications and commercial/industrial specifications and was tailored to state only the Government's minimum performance needs. All development contracts were competitively awarded and utilized commercial practices and streamlining to the maximum extent possible. Starting in FY96, a new streamlined contracting strategy was implemented with the award of three new contract. This strategy resulted in the Range & Communications Development Contract (RCDC), the Network Operations Upgrade Contract (NUC). Integration efforts had previously been spread across functional and contracting lines; but with the new AFSCN contracting strategy, the NIC contractor was given responsibility for inter-segment integration. Development upgrades are being designed to be flexible in meeting new satellite program requirements while minimizing sustainment costs by taking advantage of development efforts in satellite control over a large number of government and non-government development activities. These objectives can best be reached by developing systems with an open software design and a distributed system architecture using COTS products wherever feasible.	CN I&M progrent systems. A dro state only ining to the mare resulted in the (NIC). Integrativen responsibilities. These easible.	ram is to reduc c combination of the Government ximum extent ? Range & Co ition efforts ha wility for inter-s nent costs by t nent costs by t	e the cost of significant of performance of performance of the possible. Star menunications depreviously be segment integraking advantage of the pest be reached.	atellite control e-based specifi performance na ting in FY96, a Development een spread acra ation. Develop ge of developn d by developin	operations wh cations and co seds. All deve in new streamlii Contract (RCI oss functional oment upgrade tent efforts in g systems with	ule maintaining mannercial/indu slopment contracting DC), the Netwo and contracting are being desatellite contra h an open softy h an open softy	g or improving strial specifica acts were com g strategy was ork Operations ork Operations g lines; but wi signed to be fla over a large ware design an	g reliability, maintain ations and standards petitively awarded a implemented with the the new AFSCN exible in meeting no number of governm d a distributed syste	nability, was used for and utilized the award of (NOUC), and contracting we satellite tent and
9	F. Schedule Profile				FY 1999		$\overline{\mathrm{FY}}$ 2000	0000	FY 2001	1001
<u> </u>	Project 673276			Pag	Page 4 of 7 Pages				Exhibit R-2 (PE 0305110F)	E 0305110F)

RDT&E BI	RDT&E BUDGET ITEM JUSTIFICATIO	STIFICATION SHEET (R-2 Exhibit)	2 Exhibit)		DATE	i	February 2000	
BUDGET ACTIVITY 07 - Operational System Development	Development	PE NUMBER AND TITLE 0305110F Satell	тпге atellite Cor	ש דודוב Satellite Control Network	¥		PROJECT 673276	PROJECT 673276
(U) E. Schedule Profile Continued	ued 1	FY 1999 2 3	4 L	FY 2000 2 3	4	•	FY 2001 2 3	4
 (U) Network Operations Upgrades (U) - ESD DD-250 (U) Communications Upgrades (U) - RTS archival installation initiation (U) - Archival DD-250 (U) - WANIU DD-250 (U) - OSR Incremental Demonstration Review-1 (U) - OSR Incremental Demonstration Review-2 (U) - OSR FCA/PCA (U) - Begin External User DISN-ATM Connectivity (U) - Begin ARTS upgrade (U) - Start Control and Status Upgrade (U) - Begin ARTS upgrade *=completed; X=planned 	Network Operations Upgrades - ESD DD-250 Communications Upgrades - RTS archival installation initiation - Archival DD-250 - WANIU Functional/Physical Configuration Audit (FCA/PCA) - WANIU DD-250 - OSR Incremental Demonstration Review-1 - OSR Incremental Demonstration Review-2 - OSR FCA/PCA - Begin External User DISN-ATM Connectivity Range Upgrades - Start Control and Status Upgrade - Begin ARTS upgrade - Begin ARTS upgrade - *=completed; X=planned		· *		×	· ×		
Project 673276	I	Page 5 of 7 Pages			ш	Exhibit R	Exhibit R-2 (PE 0305110F	110F)

	RDT&E PROGRAM ELEMENT	RAM ELE		PROJECT C	COST BR	BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	8
8UD(07 ·	вирсет Астилту 07 - Operational System Development	Developme	nt		PE NUMBER AN 0305110F		אסאסא Network Satellite Control	Network		Pr 6	РРОЈЕСТ 673276
(D)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	<u>ड</u>				EV 1000	000	EV 2000		EV 2001
99	Network Ops Upgrades (Command and Control Upgrades)	nmand and Cont	rol Upgrades)				2,000	2,000	5,164	3 ↔ ∧	2,374
999	Communications Opprades Range Upgrades Network Integration and Systems Engineering	tems Engineerin	ba				30,092 0 12,651	0 0 651	15,478 15,478 9,107	0 W L	20,266
3 3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ıry and Plannin	g Informatio	n (\$ in Thousand	(হ্			r r	7,200		C+0,00
3	Performing Organizations:										
	Contractor or Government	Contract Method/Type	Award or	Performing	Project						
	<u>Performing</u>	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Product Development Organizations	<u>Vehicle</u> zations	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Multiple	Multiple	Multiple	72,296	72,296	72,296	0	0	0	0	72,296
	Lockheed Martin	C/CPAF	Mar 96	143,737	143,737	40,318	30,692	46,706	14,771	11,250	143,737
	Lockheed Martin	C/CPAF	Apr 96	50,323	50,323	43,159	2,000	5,164		0	50,323
	AFSCN Upgrades	TBD	Nov 00	TBD	TBD	0	0	0		Continuing	TBD
	Lockheed Martin	C/CPAF	May 96	64,343	64,343	19,900	12,651	6,107	9,832	12,853	64,343
	Support and Management Organizations N/A	Sanizacions									
	Test and Evaluation Organizations N/A	ations									
9	Government Furnished Property:	perty:									
		Contract Method/Type	Award or								
	<u>Item</u> Description	or Funding Vehicle	<u>Obligation</u> <u>Date</u>	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>"</u>	Project 673276			Pag	Page 6 of 7 Pages	es			Exhibi	Exhibit R-3 (PE 0305110F)	5110F)

RDT&E PROGRAM ELEMENT	SRAM ELI		ROJECT	/PROJECT COST BREAKDOWN (R-3)	OWN (R-	3)	DATE Fe	February 2000	00
BUDGET ACTIVITY 07 - Operational System Development	Developme	ent		PENUMBER AND TITLE 0305110F Satellite Control Network	LE ellite Contro	ol Network		9	РРОЈЕСТ 673276
(U) Government Furnished Property Continued: Contract Method/Type A Item or Funding O Description Vehicle D Product Development Property N/A Support and Management Property N/A	pperty Continuc Contract Method/Type or Eunding Vehicle ty	led: Award or Obligation Date	<u>Delivery</u> <u>Date</u>	Total Prior to FY 1999	or Budget 29 FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Test and Evaluation Property N/A Subtotals Subtotal Product Development Subtotal Support and Management	, nt ement			Total Prior to FY 1999 175,673	or Budget 29 FY 1999 3 45,343	Budget FY 2000 60,977	Budget FY 2001 56,643	Budget to Complete TBD	Total Program TBD
Subtotal 1est and Evaluation Total Project	_			175,673	3 45,343	60,977	56,643	TBD	TBD
Project 673276				Page 7 of 7 Pages			Exhibi	Exhibit R-3 (PE 0305110F)	

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RDT&E BUDGET ITEM JU	JSTIFIC	ATION	ISTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305111	PE NUMBER AND TITLE 0305111F Weath	PE NUMBER AND TITLE 0305111F Weather Service	e			PROJECT 672738
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672738 Weather Service	9,846	18,910	19,942	11,489	14,606	16,781	17,015	17,015 Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

sources of weather information to provide timely and precisely tailored weather products for the warfighter and supports the 'train as you fight' concept by assuring fixed System II (SDHS II). This name change provides consistency with the five core competency areas--see following paragraph.]; (g) MOC Observing System 21st Century remote systems and (h) Small Tactical Terminal (STT) provides worldwide tactical users with a survivable 'first-in' source of meteorological satellite data, processed by Program.]. Additionally, in FY99 in response to USAFE Combat Mission Needs Statement 98-008 generated during Operation Allied Force, the Target Scale Weather transportable equipment supporting the Expeditionary Aerospace Force (EAF) concept with weather observing and forecasting capabilities at in-garrison and deployed improve the AFWA theater support capabilities; (c) Tactical Weather Radar (TWR) provides lightweight, portable Doppler weather radar to support deployed combat and deployable systems are the same; (f) Weather Data Analysis (WDA) provides a fused infrastructure for the assimilation of advanced models, radar, lightning, and This program provides for the modification, sustainment, and acquisition of meteorological and space environmental hardware and software supporting the observing and forecasting needs of worldwide Air Force and Army operations, as well as Special Operation Forces (SOF) and other government agencies. It provides fixed and ocations. Efforts include: (a) Cloud Depiction and Forecast System II (CDFS II) replaces logistically unsupportable mainframe computers at the Air Force Weather warfighter requirements; (e) Meteorological Operations Capability (MOC) Forecast System 21st Century (FS-21) provides user workstations capable of ingesting all operations worldwide; (d) Space Weather Analysis and Forecast System (SWAFS) builds space environmental support and modernizes software capabilities to meet satellite data into a single user interface for the timely analysis and production of tailored weather products [In FY99 this project was named Satellite Data Handling Forecast Model (TSWFM) was developed to provide Air Tasking Order planners the ability to anticipate and exploit weather for air operations by providing greater (OS-21) provides a range of weather observing capabilities to include a fully automated capability for fixed and deployed locations and integrates both manual and classified national programs; (b) Global Theater Weather Analysis and Prediction System (GTWAPS) acquires theater weather models and associated hardware to small portable terminals in forward areas of conflict [Funding aligned to PE 35111F in FY01. Prior year funding in PE 35160F, Defense Meteorological Satellite Agency (AFWA), Offutt AFB, and upgrades satellite data processing, cloud depiction and forecasting weather support functions for operational commanders and esolution and accuracy in weather forecasts.

(U) In FY00, Air Force Weather (AFW) programs are being aligned under the five core competency areas of Weather Data Collection, Analysis, Forecasting, Product systems-oriented approach to program management decisions. Weather Data Collection will absorb TWR and MOC sensor program efforts in FY00 and beyond. Tailoring/Warfighter Applications, and Dissemination described in the AFW Mission Support Plan. Through this alignment, AFW will ensure an integrated and

Project 672738

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Page 1 of 6 Pages

Exhibit R-2 (PE 0305111F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2000
900 -	вирсет Астіуіту 07 - Operational Sy s	BUDGET ACTIVITY 07 - Operational System Development 0305111F Weather Service	PROJECT 672738
Đ	A. Mission Description Continued Analysis will continue the SDHS II Forecasting will continue both GTW Warfighter Applications will continue alignments are critical to AFW Re	A. Mission Description Continued Analysis will continue the SDHS II effort as WDA and ensure the interoperability of the AFW processing infrastructure with users and data sources. Weather Forecasting will continue both GTWAPS and CDFS II and begin merging strategic and operational level forecasting for greater efficiency. Product Tailoring and Warfighter Applications will continue development of MOC FS-21 which is the cornerstone of AFW support to operational users. These consolidations and realignments are critical to AFW Re-Engineering and implementation of the CSAF-directed and approved AFW Strategic Plan.	and data sources. Weather iciency. Product Tailoring and These consolidations and
55555	EY 1999 (\$ in Thousands) \$4,855 CD \$1,829 GT \$250 TW	 CDFS II: Continued development of cloud depiction and forecast software GTWAPS: Continued operational software development for incremental IOCs TWR: SPO support and continued development of system interfaces with Forecast and Analysis systems MOC FS-21: Prepare Milestones I/II/III documentation 	
£ £	\$40 \$845 \$700 \$0 \$46	SDHS II: Initiated assessment of operational alternative study and preparation of Milestones I/II/III documentation SWAFS: Performed design and architecture study in preparation for Milestones I/II and possibly III and to accommodate incremental operational software deliveries TSWFM: Developed software for fine scale target forecasting in response to Combat Mission Needs Statement #98-008.	ntation accommodate incremental ent #98-008.
9,666,6	EY 2000 (\$ in Thousands) \$500 \$1,127 MC \$1,700 WL	TWR: SPO support and continue development of system interfaces with Forecast and Analysis systems (Weather Data Collection) MOC OS-21: Prepare Milestones I/II/III documentation, achieve Milestones I/II/III, and begin integration and development of component sensor systems (Weather Data Collection) WDA [formerly SDHS II]: Achieve Milestones I/II/III and begin operational software development for enhanced analysis infrastructure	ather Data Collection) nd development of component nnced analysis infrastructure
5666 5	\$3,394 \$2,246 \$6,818 \$3,125 \$18,910	(Analysis) CDFS II: Continue development of cloud depiction and forecast software (Weather Forecasting) GTWAPS: Continue operational software development for incremental IOCs (Weather Forecasting) SWAFS: Achieve Milestones I/II and possibly III and begin software development for incremental deliveries (Weather Forecasting) MOC FS-21: Complete Milestones I/II/III documentation, achieve Milestones I/II/III, and award a contract for FS-21 procurement and software integration (Product Tailoring/Warfighter Applications) Total	ss (Weather Forecasting) for FS-21 procurement and software
<u> </u>	Project 672738	Page 2 of 6 Pages	Exhibit R-2 (PE 0305111F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	IEET (R-2 Exhibit	£)	DATE February 2000	y 2000
8000 - 20	BUDGET ACTIVITY 07 - Operational System Development 03	PE NUMBER AND TITLE 0305111F Weather Service	rvice		PROJECT 672738
(E)	A. Mission Description Continued		-		
9	001 (\$ in Thousar				
9	\$400 TWR: SPO support and continue development of system interfaces with Forecast and Analysis systems (Weather Data Collection)	nterfaces with Forecast and	Analysis systems	(Weather Data Collection	u)
<u> </u>	\$4,566 M.O.C. OS-21: Continue development and integration of component sensor systems (w \$3.480 WDA: Continue software development for enhanced analysis infrastructure (Analysis)	inponent sensor systems (w isis infrastructure (Analysis)	/eather Data Colle)	scnon)	
3		recast software and achieve	FOC (Weather F	orecasting)	
93	\$4,581 SWAFS: Continue software development for incremental deliveries (Weather Forecasting)	elopment for incremental deliveries (Weather Forecasting)	sting)	(December 7.0:10-min of Mon	- C - C - C - C - C - C - C - C - C - C
9	Applications)	ion with regional and tache	ai weamei system	is (i routet i anoimg war	Tigue
99	\$2,881 STT: Continue development of software for integration of satellite weather data in tactical environment. (Weather Data Collection) \$19,942 Total	satellite weather data in tac	tical environment	t. (Weather Data Collectic	(uc
9	B. Budget Activity Justification This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.	upports operational softwar and systems with approved	e development an production funds	d system tests associated in the DoD budget.	with the upgrade
9	C. Program Change Summary (\$ in Thousands)				
		FY 1999	FY 2000	FY 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	10,398 10,649	19,069 19,069	15,089	ТВД
<u> </u>	Adjustments to Appropriated Value		,		
	a. Congressional/General Reductions	-251	-55		
	o. Smain business innovanve research c. Omnibus or Other Above Threshold Reprogram	0+6-	-104		
	d. Below Threshold Reprogram	-157			
	e. Rescissions	-55			
9	 I. Other Adjustments to Budget Years Since FY 2000 PBR 			4,853	TBD
9	Current Budget Submit/FY 2001 PBR	9,846	18,910	19,942	TBD
а.	Project 672738 Page 3 of	Page 3 of 6 Pages		Exhibit R-2 (F	Exhibit R-2 (PE 0305111F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	GET ITEM	JUSTIFI	CATION	SHEET (R-2 Exhil	bit)	∕Q	DATE February 2000	2000
8UE 07	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305111F Weat	PE NUMBER AND TITLE 0305111F Weather Service	Service			PROJECT 672738
(3)	C. Program Change Summary (\$ in Thousands) Continued	(\$ in Thousanc	ls) Continued							
9	Significant Program Changes: FY01: \$2,090K transfered from SWAFS other procurment - AF to RDT&E. \$2,941K transfered from PE35160F to support STT.	SWAFS other p	rocurment - A	F to RDT&E.						
9	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	mmary (\$ in Th	ousands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
9	Other Procurement, AF, Weather Service (PE35111F WSC 833070)	<u>Actual</u> 47,949	<u>Estimate</u> 41,850	<u>Estimate</u> 48,599	<u>Estimate</u> 48,125	Estimate 45,084	<u>Estimate</u> 45,409	Estimate 46,572	Continuing	TBD
ව	E. Acquisition Strategy All major contracts within this program used precompeted DoD contract vehicles or were awarded after full and open competition. Programs support DII COE compliance and use an evolutionary acquisition strategy with a series of incremental IOCs and software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to evolving commercial activities.	ogram used prec nry acquisition st s and improves a	ompeted DoD rategy with a sidaptability to	contract vehic series of incren	les or were aw nental IOCs ar nercial activiti	'arded after fu id software rel es.	ll and open co leases. This ag	mpetition. Pro	ed DoD contract vehicles or were awarded after full and open competition. Programs support DII COE with a series of incremental IOCs and software releases. This approach accommodates refinement and ility to evolving commercial activities.	COE
9	F. Schedule Profile				FY 1999		FY 2000	000	FY 2001	1001
99999	CDFS II FOC SWAFS Milestones I/II and possibly III MOC FS-21 Milestones I/II/III MOC OS-21 Milestones I/II/III SDHS II/WDA Milestones I/II/III	ibly III		-	2	4	- ×××	۸. ×	- ×	4
	X - Denotes planned event									
	Project 672738			Page	Page 4 of 6 Pages				Exhibit R-2 (PE 0305111F)	E 0305111F)
					2001					

	RDT&E PROGRAM ELEMENT	RAM ELE		I/PROJECT COST BREAKDOWN (R-3)	OST BF	EAKDOV	VN (R-3)		DATE Fe	February 2000	0
BUD 0.4	BUDGET ACTIVITY 07 - Operational System Development	evelopme			PE NUMBE 030511	PE NUMBER AND TITLE 0305111F Weather Service	er Service			F .9	PROJECT 672738
	A. Project Cost Breakdown (\$ in Thousands)	\$ in Thousand	IS)								
,							FY 1999	999	FY 2000	а	FY 2001
<u> </u>	1st Article Development							0	1,205	10	0
3	System Software Integration							202	1,444		2,767
9	System Engineering Support						1,	1,621	2,484	**	5,778
9	Contractor Engineering Support	Ę					•	666	2,591		2,715
3	Software Development						5,	5,873	9,770	•	7,498
3	Travel							213	300	_	317
93	Program Management Support						O .	938	1,016		867
39	Laboratory Support Total						6	9,846	18,910		19,942
3	B. Budget Acquisition History and Planning Inform	y and Plannin	g Information	lation (\$ in Thousands)	S						
3	Performing Organizations:										
	Contractor or	Contract									
	Government	Method/Type	Award or	<u>Performing</u>	Project						
	gui	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	EX 1999	FX 2000	FY 2001	Complete	Program
	relopment Organiz	ations	•							·	
	Lab	MIPR : 65	May 94	270	270	270				0 (270
	Callech	LOE	Jun 94	1,1/2	1,1/2	1,1/2				-	1,1/2
		LOE FFP/PR	Jan 74 Oct 90	13.064	13.064	13.064				0	13.064
	M(Raytheon)	LOE	Jan 93	3,497	3,497	3,497				0	3,497
	PRISM (Hughes)	LOE	Jan 93	3,396	3,396	3,396				0	3,396
		CPAF	Jun 95	21,621	21,621	13,309	5,094	2,800	742	0	21,945
	her Svc (CDFS II	MIPR	4FY95	2,900	2,900	2,900				0	2,900
	related work)										
	es		Sep 95	1,682	1,682	1,682				0	1,682
		MIPR	Jan 95	100	100	100				0	100
	CCPL (TRW) [GTWAPS]	LOE	Dec 97	3,986	3,986	2,023	1,597	966	0	Continuing	TBD
<u></u>	Project 672738			Pag	Page 5 of 6 Pages	es			Exhibi	Exhibit R-3 (PE 0305111F)	5111F)

RDT&E PROGRAM ELEMENT/PROJECT	GRAM EI	EMENT/PR	OJECT C	COST BREAKDOWN (R-3)	EAKDOV	VN (R-3)		DATE	February 2000	[
BUDGET ACTIVITY 07 - Operational System Development	Developn	nent		PE NUMBER AND TITLE 0305111F Weat	AND TITLE F Weather	Neather Service				PROJECT 672738
(U) Performing Organizations Continued: Product Development Organizations	Continued:									
Raytheon	MIPR	Sep 98	1,184	1,184	232	250	415	351	C	1 248
TBD MOC FS-21	TBD	TBD	TBD	TBD	0	0	1,842	2.143	Continuing	TRD
TBD MOC OS-21	TBD	TBD	TBD	TBD	0	0	700	3,279	Continuing	TBD
TBD SDHS II/WDA	TBD	TBD	TBD	TBD	0	0	1,073	2,141	Continuing	TBD
TASC	LOE	Sep 99	741	741	0	741	0	0	0	741
CCPL (TRW) [SWAFS]	LOE	Dec 99	4,780	4,780	0	0	4,780	0	0	4,780
TBD SWAFS	TBD	TBD	TBD	TBD	0 (14	2,176	4,269	Continuing	TBD
*Note: prior to FY01, STT in		Cal	181	IBD	0	0	0	2,881	Continuing	TBD
PE 35160F.										
Support and Management Organizations	rganizations									
Electronic Systems Center					824	006	1.072	835	Continuing	TRD
(ESC)									g	
Space and Missile Systems					40	188	172	204	Continuing	TRD
Center (SMC)								1	9	
MITRE/ Aerospace/ITSP					2,151	1,062	2,884	3,097	Continuing	TRD
Test and Evaluation Organizations	zations							•	٥	
Subtotals Subtotal Product Development	int			⊣ 3	Total Prior to FY 1999 43,772	Budget FY 1999 7,696	Budget FY 2000 14,782	Budget FY 2001 15,806	Budget to Complete TBD	Total Program TBD
Subtotal Test and Evaluation	ement 1				3,015	2,150	4,128	4,136	TBD	TBD
Total Project					46,787	9,846	18,910	19,942	TBD	TBD
Project 672738			£	75° 7				: :		
00121000011			Fage	rage 6 of 6 rages				Exhib	Exhibit R-3 (PE 0305111F)	5111F)

PE NUMBER: 0305114F
PE TITLE: Air Traffic Control/Approach/Landing System (ATCALS)

	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)		DATE		February 2000
8UDGET 07 - 0	вирсет Астииту 07 - Operational System Development			PE NUMBER 0305114 System	PE NUMBER AND TITLE 0305114F Air Traf System (ATCALS)	affic Con S)	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	roach/La	ınding	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	2,870	7,279	18,093	12,279	5,579	5,885	5,995	Continuing	TBD
672026	672026 System Support	252	231	252	237	246	194	193	Continuing	TBD
673587	Air Traffic Control Systems	2,618	7,048	17,841	12,042	5,333	5,691	5,802	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Global Air Traffic Management and Global Access, Navigation, and Safety. Project 2026 funds ongoing liaison and interagency cooperative studies, between the USAF as air traffic controller training and terminal instrument procedures development. This program complements other safety of flight and airspace access programs such as (in the second and third decades of the next century). Additionally, this program investigates and exploits emerging technologies in critical ATCALS support areas such space-based infrastructure. In particular, the program is focused on developing systems that increase commonality and interoperability, reduce manpower requirements, Research, development, test, and engineering activities in this program originally focused on developing the Military Microwave Landing System Avionics (MMLSA) reduce logistics supportability problems, and posture the service to move to space-based aerospace navigation infrastructure when that becomes feasible and affordable Approach Radars and Instrument Landing Systems that provide precision landing services even at night and in bad weather. However, with the advent of space-based technologies, the MMLSA program was canceled in the late 1980s. The focus of RDT&E activities in this program turned to a comprehensive modernization of fixed Project 3587 funds research and development of new air traffic control surveillance, positioning, and precision approach capabilities (including the Mobile Approach Control System (MACS) which replaces non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for Air Traffic Control and Landing Systems program office and various organizations to include other Services, the Federal Aviation Administration (FAA) and ICAO. and acquisition of the commercially developed Commercial Microwave Landing System Avionics (CMLSA) as part of a two-decade effort to replace the Precision and mobile Air Traffic Control and Landing Systems (ATCALS) that will bridge the gap between the current aging fleet of ground-based ATCALS and future both the Air National Guard and REGAF). project 3587 also completes the

(U) B. Budget Activity Justification

This program is in budget activity 7 - Operational System Development, because it upgrades avionics in currently fielded weapon systems.

Page 1 of 12 Pages

Exhibit R-2 (PE 0305114F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibit		DATE February 2000	
8UD 07 -	вирсет Астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	Sontrol/Appro	ach/Landing	
(1)	C. Program Change Summary (\$\frac{1}{2}\$ in Thousands)				,
9	Previous President's Budget (FY 2000 PBR)	FY 1999 4,389	FY 2000 5.588	FY 2001 18.254	Total Cost
3	Appropriated Value	4,729	7,344		
9	Adjustments to Appropriated Value				
	a. Congressional/General Reductions b. Small Business Innovative Research	-340 -145			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-1,358			
	e. Kescissions f Other	01-	ဇု		TRD
9	Adjustments to Budget Years Since FY 2000 PBR			-161	201
9	Current Budget Submit/FY 2001 PBR	2,870	7,279	18,093	TBD
5	Significant Program Changes: Funding:				
	1. FY 99: Below-Threshold Reprogramming of \$474 made to support higher priority programs.	er priority programs.			
	2. FY00 upward adjustment transfers RDT&E funding from the National Airspace System (NAS) program (PE 305137F) to ATCALS to consolidate small RDT&E lines. The funds will still be used to complete testing and fielding of NAS systems (radars, voice switches, data automation systems, and data systems designed to assist in management of special use airspace)	from the National Airspace System (NAS) program (PE 305137F) to ATCALS to consolidate small RDT&E nd fielding of NAS systems (radars, voice switches, data automation systems, and data systems designed to as	PE 305137F) to AT ata automation syste	CALS to consolidate small RD' ems, and data systems designed	T&E
	3. FY01 reflects -\$161 adjustment for revised inflation assumptions				
	Page	Page 2 of 12 Pages		Exhibit R-2 (PE 0305114F)	3114F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFICA	TION (SHEET (R-2A E	xhibit)		DATE	February 2000	ry 2000
80DC 07 -	вирсет астилту 07 - Operational System Development			PE NUMBEF 0305114 System	PE NUMBER AND TITLE 0305114F Air Traf System (ATCALS)	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	trol/App	roach/La	ınding	PROJECT 672026
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672026	26 System Support	252	231	252	237	246	194	193	Continuing	TBD
9	A. Mission Description This continuing effort funds ongoing liaison and interagency cooperative studies, as well as interoperability analyses between the USAF Air Traffic Control and Landing Systems (ATCALS) Program Office and various organizations which include the other services, the Federal Aviation Administration (FAA), and the International Civil Aviation Organization (ICAO). Continues mission support for the ATCALS programs including several joint efforts with the FAA. RDT&E funds are used to resolve or minimize technical interface problems associated with interoperability between existing or planned DoD/FAA ATCALS equipment and capabilities.	agency coor ious organiz ontinues mis oblems assoo	perative stuc ations whic sion suppor	gency cooperative studies, as well as interoperability analyses between the USAF Air Traffic Control and ous organizations which include the other services, the Federal Aviation Administration (FAA), and the ntinues mission support for the ATCALS programs including several joint efforts with the FAA. RDT&E blems associated with interoperability between existing or planned DoD/FAA ATCALS equipment and	as interoper: cother servi CALS progr ity between	ability analys ces, the Fede ams includir existing or p	ses between rral Aviatior ng several jo nanned DoL	the USAF A Administra int efforts w	vir Traffic Cc tion (FAA), vith the FAA. ALS equipm	ontrol and and the . RDT&E funds ent and
99999	FY 1999 (\$ in Thousands) \$92 Supported Air Traffic Control and Landing Systems (ATCALS) projects \$111 Conducted interoperability and interface evaluations \$49 Supported precision landing systems studies for the Joint Special Operations Command \$252 Total	and Landing Systems I interface evaluations stems studies for the D	; Systems (4 naluations s for the Jo	ATCALS) pr int Special C	ojects)perations C	ommand				
33333	FY 2000 (\$\\$\text{in Thousands}\) \$88 Support for all ATCALS projects \$96 Conduct interoperability and interface evaluations \$47 Support for precision landing studies for JSOC \$231 Total	cts nterface eval studies for JS	uations 3OC							
99999	FY 2001 (\$\\$\) in Thousands) \$90 Support for all ATCALS projects \$113 Conduct interoperability and interface evaluations \$49 Support for precision landing studies for JSOC \$252 Total	cts nterface eval studies for JS	uations 30C							
<u>e</u>	B. Project Change Summary									
O.	Project 672026		Page	Page 3 of 12 Pages	Se			ú	thibit R-2A (Exhibit R-2A (PE 0305114F)
				,,,,,						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (F	R-2A Exh	libit)	DATE	те February 2000	7 2000
800 07	вирсет Астімту 07 - Operational System Development	PE NUMBER AND TITLE 0305114F Air Trais System (ATCALS)	AND TITLE Air Traff ATCALS)	ic Control/	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	Landing	PROJECT 672026
(2)	n Thousands) FY 2000	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
99	Actual Estimate Estimate AF RDT&E Other APPN N/A	Estimate	Estimate	Estimate	Estimate	Complete	
3	D. Acquisition Strategy Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), No Non-Developmental Items (NDI)	No Non-Devel	opmental Item	is (NDI)			
<u> </u>	E. Schedule Profile	FY 1999		FY 2000	000	EY	FY 2001
		2 3	4	1 2	3 4	1 2	3 4
555	Acquisition Milestones MACS Acquisition Strategy Approved MACS RFP for Airport Surveillance Radar (ASR)/Operations			× ×			
9	Systems MACS RFP for Precision Approach Radar (PAR) System (See				×		
9	footnote) Contract Milestone						
9	MACS source selection for ASR/Ops				×		
9	MACS source selection for PAR (See footnote)			>		×	
9	Conduct Precision Landing Studies X NOTE: To save costs development and long-term sustainment costs, USAF and the US Navy will cooperatively develop the Precision Approach Radar (PAR) system associated with MACS. The Navy is performing all acquisition/contracting actions associated with the PAR system and the timelines shown reflect the Navy's estimate	and the US Na	vy will cooper	X ratively develoy	p the Precision	X Approach Radar bown reflect the l	(PAR) system
	provided to the System Program Office (HQ ESC/GA)	actions associat		are ayatem, ame	t tile tilletilles s		navy s estimate
ш.	Project 672026	Page 4 of 12 Pages				Exhibit R-2A (PE 0305114F)	E 0305114F)

	RDT&E PROGRAM ELEMENT	MELEI		/PROJECT C	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
800x	вирсет астилту 07 - Operational System Development	lopmen			0305114F System (A	PE NUMBER AND TITLE 0305114F Air Traf System (ATCALS)	ffic Contr	⊌ਰੇ ਸπ∟∈ Air Traffic Control/Approach/Landing TCALS)	ch/Landir		PROJECT 672026
(C)	A. Project Cost Breakdown (\$ in Thousands)	Thousands	લ				FY 1999	666	FY 2000	Q	FY 2001
999999	System Engineering Contract Engineering Test and Evaluation Support Program Management Support Travel							148 81 0 11 12 252	141 70 0 10 10 231	3-0000-	146 86 0 0 10 10 252
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	d Planning	Informatio	n (S in Thousand	(হ্						
9	orming Organizations: ractor or rument orming vity uct Development Organiz	act d/Type iding le	Award or Obligation Date	Performing Activity EAC	Project Office EAC	<u>Total Prior</u> to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	N/A Support and Management Organizations Various Test and Evaluation Organizations N/A	nizations Multiple ons	Multiple	N/A		1,018	252	231	252		1,753
<u> </u>	Government Furnished Prop Item Description Product Development Properts N/A	act od/Type nding ie	Award or Obligation <u>Date</u>	Delivery <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Lotal</u> <u>Program</u>
LL.	Project 672026			Pag	Page 5 of 12 Pages	ges			Exhib	Exhibit R-3 (PE 0305114F)	305114F)

RDT&E PROGRAM ELEMENT/PI	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	iffic Contr	ol/Approa	ch/Landir		РВОЈЕСТ 672026
(U) Government Furnished Property Continued: Support and Management Property N/A Test and Evaluation Property						
Subtotals Subtotal Product Development	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Subtotal Support and Management Subtotal Test and Evaluation	1,018	252	231	252		1,753
Total Project	1,018	252	231	252		1,753
Project 672026	Page 6 of 12 Pages			Exhibi	Exhibit R-3 (PE 0305114F)	05114F)

	RDT&E BUDGET ITEM JU	JSTIFIC/	STIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A E	xhibit)	i	DATE	Februa	February 2000
BUDGE 07 - (вирсет Астилту 07 - Operational System Development			PE NUMBER 0305114 System	PE NUMBER AND TITLE 0305114F Air Trat System (ATCALS)	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	trol/App	roach/La	ınding	PROJECT 673587
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673587	Air Traffic Control Systems	2,618	7,048	17,841	12,042	5,333	5,691	5,802	Continuing	
(0)	A. Mission Description This project funds research and development of new air traffic control surveillance, positioning, and precision approach capabilities (including the Mobile Approach Control System (MACS) which replaces non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for both the Air National Guard and REGAF). This year, the project completed development of a multi-mode receiver (the Precision landing System) which will equip every C-17 with the capability to fly approaches using a variety of landing aids, including microwave landing systems and Instrument Landing Systems located close to sources of interference. This project also conducts development and testing for the National Airspace System (NAS) to support fielding of NAS hardware and software for radar systems, digital voice switches, and specialized data automation systems. Additionally, this project funds the development of a replacement system for automated development of terminal instrument procedures (the precisely-measured documents that tell pilots how to fly during final approach to avoid obstacles). This project will also investigate low-cost, high-return methods for improving interoperability between US air navigation systems and those of allied nations, especially the NATO countries.	v air traffic cc rd, unsupport rr, the project ng a variety o levelopment s lized data aute edures (the pr	able, large for completed of flanding aid und testing from syst ecisely-mea	llance, posit not provint mot levelopment is, including or the Nation sems. Addit sured docum roperability	ioning, and joile radar apo of a multi-remirrowave nal Airspace ionally, this tents that telbetween US	precision approach systemode receive landing system (NA System (NA project fund lipilots how air navigatic	roach capal ms with a cc r (the Precis ems and Ins cS) to suppo is the develc to fly during on systems a	oilities (incluormon, easi ion landing trument Lan rt fielding of ppment of a 1 gfinal appround those of a 1 df those of a 1 d	iding the Mo ly-transporta System) whi ding System f'NAS hardw eplacement ach to avoid allied nation	air traffic control surveillance, positioning, and precision approach capabilities (including the Mobile Approach, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for the project completed development of a multi-mode receiver (the Precision landing System) which will equip a variety of landing aids, including microwave landing systems and Instrument Landing Systems located close to velopment and testing for the National Airspace System (NAS) to support fielding of NAS hardware and software sed data automation systems. Additionally, this project funds the development of a replacement system for lures (the precisely-measured documents that tell pilots how to fly during final approach to avoid obstacles). This hods for improving interoperability between US air navigation systems and those of allied nations, especially the
<u> </u>	\$133 Continued to perform platform integration and system engineering analyses \$365 Completed PLS flight testing /certification Mobile Approach Control System Analysis of Alternatives \$1,613 Air Force Terminal Instrument Procedures Analysis of Alternatives \$2,618 Total	m integration ;/certification stem Analysi nt Procedures	n integration and system engineering a certification lem Analysis of Alternatives t Procedures Analysis of Alternatives	engineering tives f Alternativ	analyses ss					
<u> </u>	\$3,454 Begin Mobile Approach Control System Development Support field to ensure USAF ATC interoperability with FAA and NATO Begin technology insertion studies to determine USAF ATC applicability with coalition allies Begin development of Air Force Terminal Instrument Procedures System Identify interface improvements for NAS systems Perform NAS risk reduction studies/software interoperability analyses Complete NAS radar/automation testing	trol System E F ATC interol tudies to deter ree Terminal nts for NAS s rtudies/softwa	ol System Development ATC interoperability with FAA and NATO dies to determine USAF ATC applicability e Terminal Instrument Procedures System s for NAS systems udies/software interoperability analyses an testing	ith FAA and ATC applic Procedures Sability analy	NATO ability with ystem ses	.coalition all	S			
Pro	Project 673587		Page '	Page 7 of 12 Pages	S			ĒX	hibit R-2A (Exhibit R-2A (PE 0305114F)
				07.01						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JGET ITEN	I JUSTIF	CATION	SHEET (R-2A Exh	libit)	Δ	DATE Februa	February 2000
800 07 .	вирсет аститу 07 - Operational System Development)evelopmen			PE NUMBER AND TITLE 0305114F Air Tr System (ATCAL)	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	ic Control	//Approach	ı/Landing	PROJECT 673587
3	A. Mission Description Continued	inued								
999	FY 2000 (\$ in Thousands) Continued \$802 Complete deve \$7,048 Total	ids) Continued Complete development of NAS Total	of NAS Militaı	y Airspace Ma	Military Airspace Management System	tem				
9999999	FY 2001 (\$ in Thousands) \$15,759 Contin \$419 Suppor \$494 Contin \$540 Contin \$629 Investi	Continue Mobile Approach Control System Development Support field activities to ensure USAF ATC interoperability with FAA and NATO Continue technology insertion studies to determine USAF ATC applicability with coalition allies Continue development of Air Force Terminal Instrument Procedures System Investigate improvements in Mode S capabilities Total	bach Control S. to ensure USA sertion studies of Air Force Te ats in Mode S. cats in Mode S. c	stem Develop F ATC interop to determine L rminal Instrum apabilities	ment erability with I JSAF ATC apr ent Procedures	FAA and NAT blicability with s System	O coalition allie	Š.		
9	B. Project Change Summary 1. NOTE: Program awaiting \$7,890 reclassification of FY99 OPAF funds to RDT&E to support MACS development	; \$7,890 reclassific	ation of FY99	OPAF funds t	o RDT&E to s	upport MACS	development			
	2. FY00 upward adjustment transfers RDT&E funding from the National Airspace System (NAS) program (PE 305137F) to ATCALS to consolidate small RDT&E lines. The funds will still be used to complete testing and fielding of NAS systems (radars, voice switches, data automation systems, and data systems designed to assist in management of special use airspace)	ransfers RDT&E sed to complete t airspace)	funding from testing and fiel	he National Ai ling of NAS sy	irspace System ystems (radars,	(NAS) progra voice switche	ım (PE 305137 s, data automa	7F) to ATCAL ition systems, a	S to consolidate and data systems	small RDT&E designed to assist
	4. FY01 includes approximately \$150 reduction to account for revised economic assumptions	ly \$150 reduction	n to account for	revised econc	omic assumptic	su				
<u> </u>	C. Other Program Funding Summary (\$ in Thousands) EX 1999 EX 2000 Actual Estimate	Summary (\$ in T FY 1999 Actual	[housands] FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	Cost to Complete	Total Cost
99	AF RDT&E National Airspace System program (PE 305137F) (See footnote)	1,787	0	201	203	206				
99	Other APPN Aircraft procurement, AF	0	0	0	0	0	0	0	Continuing	TBD
ഥ	Project 673587			Page	Page 8 of 12 Pages				Exhibit R-2A (Exhibit R-2A (PE 0305114F)

	RDT&E BUDGET	ET ITEM	JUSTIFI	ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (F	3-2A Exh	ibit)	O	DATE February 2000	y 2000
900 07	вирсет Астилту 07 - Operational System Development	/elopment			PE NUMBER AND TITLE 0305114F Air Tr System (ATCAL)	PE NUMBER AND TITLE 0305114F Air Traff System (ATCALS)	ытт∟Е Air Traffic Control/Approach/Landing (TCALS)	/Approach	//Landing	РРОЈЕСТ 673587
9	C. Other Program Funding Summary (\$ in Thousands)	ımarv (\$ in T	housands)							
,		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
5	OPAF - BA 3 (PE 305114F)	<u>Actual</u> 7.890	Estimate 9.025	Estimate 10,624	Estimate 33,903	Estimate 42.157	Estimate 76.033	Estimate 85,132	Complete Continuing	TBD
	Weapon System Code 833010	13 904	45 394	59 240		54 775	48 179	48 417	Continuing	5799
9	Weapon System Code 833020	10,,01	1,7,6	0.74	00,00	, , ,	10,17	70,41	9	
9	OPAF, BA 5, (PE 305137F)	1,386	4,259	4,993	5,405	4,596	4,030	4,130	Continuing	
Œ	Weapon System Code 86190A (initial Spares) MILCON AF	16.514	4.000	c	C	c	C	c	Continuing	TBD
)	(1) The FY00 funding (\$1,756) was transferred from the NAS program element to this PE in the FY00 Defense Appropriations Act. For FY01-FY03, RDT&E, AF funds shown in this line will be consolidated in PE 305114Fto provide greater management flexibility.	as transferred lated in PE 30.	from the NAS	NAS program element to this PE in the provide greater management flexibility.	ent to this PE in agement flexibil	n the FY00 De ility.	fense Appropr	iations Act. F	or FY01-FY03, RI	OT&E, AF funds
9	D. Acquisition Strategy Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), No Non-Developmental Items (NDI)	opment, Fixec	l Price Incentiv	ve Fee (FPIF),	No Non-Devel	opmental Item	s (NDI)			
9	E. Schedule Profile									
				_	FY 1999 2 3	4	$\begin{array}{ccc} & \text{EY} 2000 \\ 1 & 2 & 3 \end{array}$	3 4	1 EX	FY 2001 2 3 4
9	Acquisition Milestones:									
9	NAS Milestone II (MS II) (Jul 95)	95)								
9	NAS Revised Acquisition Pgm Baseline	Baseline			* 1					
€	NAS Amended MSII Acquisition Decision Memorandum	ion Decision N	Aemorandum		: x					
<u> </u>	NAS Padar I DID Decision	SIOII					>			
96	NAS Automation LRIP Decision	u c					<×			
3	NAS Radar & Automation MSIII						!		×	
<u> </u>	NAS IOC								×	
9	NAS FOC (3QFY10)									
	Project 673587			Page	Page 9 of 12 Pages				Exhibit R-2A (PE 0305114F)	E 0305114F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	CATION SHEET (R-2A Exhibit)	DATE February 2000
800 07	вирсет Астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	PROJECT ach/Landing 673587
(9)	E, Schedule Profile Continued	FY 1999 FY 2000	FY 2001 4 1 2 3 4
55	Contract Milestones NAS Radar		n 1
999	Contract Award (Aug 96) Complete Operational Test & Eval		×
9999	Contract Award (Sep 96) Complete Operational Test & Eval		×
9999	Contract Award (Sep 95) Completed operational Test & Eval NAS Military Airspace Mgt System	*	
<u> </u>	Contract Award (Nov 95) First Delivery/IOC MAMS Central Facility activation MACS	*	×
<u> </u>	Analysis of Alternatives Contract Award Developmental Operational Testing	*	×
	Project 673587	Page 10 of 12 Pages	Exhibit R-2A (PE 0305114F
		1340	

	RDT&E PROGRAM ELEMEN	AM ELE		OJECT (SOST BR	I/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE F€	February 2000	00
9 6	вирдет астилту 07 - Operational System Development	evelopme	nt		PE NUMBE 030511 System	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	ffic Contr	ol/Approa	ch/Landi		РRОЈЕСТ 673587
3	A. Project Cost Breakdown (\$ in Thousands)	in Thousand	(8)				1 232		00 A33	9	EV 2001
		•					365	365	2.454	315	15 750
<u> </u>	Primary Hardware Development Drimary Hardware Test and Evaluation	II almation					•	0	1.532	t 2	0
) E	•	ni wanion						41	o ∞	08	87
9								92	265	5	442
3	•	ntegration acti	vities					0	611	_	903
3		Analyses						0	139	6	0
3		em (MACS) A	OA				1,	1,571		0	0
<u></u> 9		Procedures D	evelopment				7,	507	847	7:	540
3		and Travel	ı					42	120	0.	110
<u> </u>	-						2,	2,618	7,048	∞.	17,841
,	NOTE: Until FY2000, National Airspace System costs were captured in PE 305137F (National Airspace System). As of FY2000, those costs are captured in this	l Airspace Sy	stem costs were	captured in P	E 305137F (N	ational Airspac	e System). A	s of FY2000,	those costs	are captured ii	ı this
9		, and Plannin	g Information	nation (\$ in Thousands)	ids)						
) E											
9	Contractor or	Contract									
	_	<u>Zoniu act</u> Anthod/Trmo	۸ بندین م	Dorforming	Droiset						
	Covernment Performing	Method/1ype or Funding	Award or Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	ganiz	tions	,								000
	GEC Marconi-Hazeltine F	FPIF	Jun 93	19,400	19,400	10,165	365			(10,530
	Lear Astronics F	FFP	Dec 97	2,900	2,900	2,900	,		,	0 .	2,900
	Various	Multiple	Multiple	Continuing	Continuing	0	2,054	5,854	17,301	Continuing	TBD
	Support and Management Organizations	nizations									
	Various	Multiple	Multiple	Continuing	Continuing	4,041	199	550	540	Continuing	TBD
	Project 673587			Pa	Page 11 of 12 Pages	ges			Exhik	Exhibit R-3 (PE 0305114F)	(05114F)

	RDT&E PROGRAM ELEMENT	_	PROJECT COST	OST BR	BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
BUE 07	вирсет Астииту 07 - Operational System Development	ent		PE NUMBE 0305114 System	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALS)	ffic Contro	ol/Approa	ch/Landir		PROJECT 673587
(D)	Performing Organizations Continued: Test and Evaluation Organizations 46th Test Wing, Eglin AFB PO	Multiple	2,135	2,235	1,835		644	0	0	2,479
	NOTE: All figures prior to FY00 for the 46th Test Wing under the 'Test and Evaluation Organizations' category was disbursed in PE 305137 (National Airspace System). Figures are shown here for reference only.	th Test Wing under ace only.	r the 'Test and]	Evaluation ()rganizations' o	category was (lisbursed in P	'E 305137 (N	ational Airspa	93
9	Government Furnished Property: Contract Method/Type Item Or Eunding Description Vehicle Product Development Property N/A	Award or Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Support and Management Property N/A Test and Evaluation Property									
	N/A Subtotals				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project				13,065 4,041 1,835 18,941	2,419 199 2,618	5,854 550 644 7,048	17,301 540 0 17,841	TBD TBD 0 TBD	TBD TBD 2,479 TBD
<u></u>	Project 673587		Page	Page 12 of 12 Pages	es			Exhibi	Exhibit R-3 (PE 0305114F))5114F)

	RDT&E BUDGET ITEM JU		ATION	SHEET	STIFICATION SHEET (R-2 Exhibit)	chibit)		DATE	ŧ	February 2000
BUDC 07	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305119	PE NUMBER AND TITLE 0305119F Mediu	PE NUMBER AND TITLE 0305119F Medium Launch Vehicles	ch Vehic	Se		PROJECT 67624A
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
67624A	JA Medium Launch Vehicle	3,497	0	0	0	0	0	0	0	399,118
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
©	A. Mission Description National Security requirements dictate a continuing, highly reliable means of placing critical Department of Defense (DoD) satellites into required orbits. Assured access to space, directed by the President in the National Security Launch Strategy, will be accomplished through the use of a robust mix of Expendable Launch Vehicles (ELVs). The Medium Launch Vehicle (MLV) program provides sustainment, procurement and launch of DoD's Atlas II and Delta II ELVs at Cape Canaveral AS, FL, and at Vandenberg AFB, CA. MLV launches Defense Satellite Communication System (DSCS) and Global Positioning System (GPS) satellites. The RDT&E budget for MLV primarily consists of engineering support for system performance upgrades to both the vehicles and the launch facilities, new payload integration, sustaining engineering, and post-flight assessment to maintain the high reliability of the launch vehicles.	highly reliabonal Security V) program ss Defense S pport for sys	le means of Launch Str. provides su atellite Com tem perforn:	placing criti ategy, will b stainment, p umunication ance upgrae	ghly reliable means of placing critical Departmen al Security Launch Strategy, will be accomplished) program provides sustainment, procurement an Defense Satellite Communication System (DSCS out for system performance upgrades to both the naintain the high reliability of the launch vehicles.	tent of Defer hed through and launch o CS) and Glo are vehicles a es.	ise (DoD) so the use of a of DoD's Atl obal Position and the laund	atellites into robust mix e as II and De ing System (th facilities,	ghly reliable means of placing critical Department of Defense (DoD) satellites into required orbits. Assured al Security Launch Strategy, will be accomplished through the use of a robust mix of Expendable Launch) program provides sustainment, procurement and launch of DoD's Atlas II and Delta II ELVs at Cape Cana Defense Satellite Communication System (DSCS) and Global Positioning System (GPS) satellites. The RD'sort for system performance upgrades to both the vehicles and the launch facilities, new payload integration, naintain the high reliability of the launch vehicles.	ghly reliable means of placing critical Department of Defense (DoD) satellites into required orbits. Assured al Security Launch Strategy, will be accomplished through the use of a robust mix of Expendable Launch) program provides sustainment, procurement and launch of DoD's Atlas II and Delta II ELVs at Cape Canaveral Defense Satellite Communication System (DSCS) and Global Positioning System (GPS) satellites. The RDT&E out for system performance upgrades to both the vehicles and the launch facilities, new payload integration, naintain the high reliability of the launch vehicles.
55555	\$1,193 (\$\subseteq \text{in Thousands}) \$1,193 Delta II range required facilities upgrade \$545 Delta II systems integration \$1,759 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations for launch complexes 3, 17, and 36 \$3,497 Total	es upgrade ission suppor	t for MLV 1	aunch facili	ties, infrastr	ucture, and le	aunch opera	tions for lau	nch complex	es 3, 17, and 36
999	FY 2000 (\$ in Thousands) \$0 No Activity \$0 Total									
999	FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total									
<u> </u>	B. Budget Activity Justification This program is in Budget Activity 7, Operational Syst	stems Devel	opment, bec	ause the Me	dium Launc	h Vehicles p	orogram is ir	ı full produc	tion and fully	tems Development, because the Medium Launch Vehicles program is in full production and fully operational.
<u>a</u>	Project 67624A		Page	Page 1 of 5 Pages	S				xhibit R-2 (Exhibit R-2 (PE 0305119F)

	RDT&E BUDGET ITEM JU		CATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)		DATE February 2000	ry 2000
905 - 20	вирсет астилту 07 - Operational System Development	ıt		PE NUMBER AND TITLE 0305119F Medit	AND TITLE • Medium	PE NUMBER AND TITLE 0305119F Medium Launch Vehicles	ehicles		PROJECT 67624A
(£)	C. Program Change Summary (\$ in Thousands)	ands)			FV 1999	FY 2000		FY 2001	Total Cost
9	Previous President's Budget (FY 2000 PBR)				7,338	1,179		1,963	399,118
99	Appropriated Value Adjustments to Appropriated Value				7,375	0	-		
	a. Congressional/General Reductions				-37				
	b. Small Business Innovative Research	meri			\$				
	d. Below Threshold Reprogram	grann			-3,757				
	e. Rescissions f Other				-20				
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	PBR			3,497	0	2	-1,963 0	399,118
5	Significant Program Changes: Funding: FY99 program changes reflect reprogramming actions of Delta funds to higher Air Fo Recolored FY01 through FY03 funds to 3020 to eliminate existing shortfall in FFRDC support.	ogramming action to eliminate exis	is of Delta fun ting shortfall	ids to higher A	ir Force prioril	ies due to requ	uirement rec	g actions of Delta funds to higher Air Force priorities due to requirement reductions for sustaining engineering.	ng engineering.
9	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	Thousands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
		Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
99	Other APPN Missile Procurement, Air 172,268 Force (PE35119F, BA 5, P-1 29)	64,013	55,939	47,161	46,767	37,199	36,947	0	2,595,734
ව	E. Acquisition Strategy The MLV program is in final production and consists of two medium launch vehicles: Atlas II and the Delta II. The Air Force Atlas II launch vehicle RDT&E and production programs are complete. The procurement dollars for the Air Force Atlas II program finance the launch services for the two remaining DSCS missions on the Lockheed Martin Atlas launch base operations contract. The Delta II program primarily consists of launching Global Positioning System (GPS) satellites to replenish the current constellation. The final option on the Boeing production contract for the last 5 Delta II boosters was exercised in January 1999, so remaining Delta II procurement funds are for Delta launch operations, sustaining engineering, and program office support.	consists of two marement dollars for contract. The D toeing production ions, sustaining e	edium launch r the Air Forc elta II progran ı contract for t ngineering, an	vehicles: Atla e Atlas II prog n primarily cor the last 5 Delta id program offi	s II and the De cam finance the lsists of launch II boosters wa ce support.	Ita II. The Air e launch servi inig Global Po is exercised in	Force Atlastics for the transitioning Sy January 199	ftwo medium launch vehicles: Atlas II and the Delta II. The Air Force Atlas II launch vehicle RDT&E and ollars for the Air Force Atlas II program finance the launch services for the two remaining DSCS missions on the The Delta II program primarily consists of launching Global Positioning System (GPS) satellites to replenish the oduction contract for the last 5 Delta II boosters was exercised in January 1999, so remaining Delta II aining engineering, and program office support.	DT&E and smissions on the es to replenish the sta II
۵	Project 67624A		Pag	Page 2 of 5 Pages				Exhibit R-2 (Exhibit R-2 (PE 0305119F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibit)		DATE Fe l	February 2000	
вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305119F Medium Launch Vehicles	nch Vehicles		PROJECT 67624A	ест 24A
 (U) Delta/GPS Launches (U) Delta/STP Launch (U) Atlas/DSCS Launches *=complete X=planned (may reflect more than one launch per quarter) 	FY 1999 4 1 **	EY 2000 2 3 X	4 X 1 X X	EY 2001 2 3 X X	4
Project 67624A	Page 3 of 5 Pages		Exhibit	Exhibit R-2 (PE 0305119F)	19F)

	RDT&E PROGRAM ELEMENT	RAM ELE		PROJECT CO	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
- 20) ana	вирсет астипт 07 - Operational System Development	Developmer	ηt		PE NUMBER AI 0305119F	Z	ID TITLE Medium Launch Vehicles	Vehicles		9	PROJECT 67624A
(£)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(SI				EV 1000	000	EV 2000	ç	EV 2001
5555	Delta II Range Facilities Upgrades Delta II Systems Integration Sustaining Engineering and Mission Support Total	rades Aission Support					1, 2, 1, 8, 2, 8, 2, 8, 2, 8, 2, 8, 2, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	1,193 545 1,759 3,497		80000	0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	(S in Thousands	G						
9	Performing Organizations;										
·	Contractor or Government	Contract Method/Type	Award or	Performing	Project						
	Performing Activity	or Funding Vehicle	Obligation Date	Activity	Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations	zations								•	
	Lockheed Martin	SS/FFP	Jun 88	N/A	N/A	70,927				0	70,927
	Boeing	SS/FFP	Sep 87	N/A	N/A	205,270				0	205,270
	Boeing	C/FFP	Apr 93	N/A	N/A	25,068	1,695			0	26,763
	GSAC	Various	Various	V / V	N/A	3,321				0	3,321
	Austere Improvements	Various	Various	N/A	N/A	10,484					10,484
	Support and Management Organizations	ganizations									
	Mission Support	SS/FPI	FY94	N/A	N/A	16,203	1,095			0	17,298
	Various SMC	Various	FY94	N/A	N/A	53,218	707			0	53,925
	Other Ktr Sup	SS/FFP	FY94	N/A	N/A	2,254				0	2,254
	Vandenberg Sup	Various	Various	A/A	N/A	3,270				0 (3,270
	Environment/Safety	Various	Various	N/A	N/A	2,606				0	2,606
	Lest and Evaluation Organizations None	tions									
Δ.	Project 67624A			Page	Page 4 of 5 Pages	S			Exhibi	Exhibit R-3 (PE 0305119F))5119F)
				S							2

Per NUMBER AND TRIE	RDT&E PROGRAM ELEMENT/PROJECT (COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
Gortract Contract Award or Method/Type Award or Date Delivery Total Prior Budges Budges BN Product Development Property None 10 FY 1999 FY 2000 FY None Support and Management Property None 1 FY 1999 FY 2000 FY None Test and Evaluation Property None 1 FY 1999 FY 2000 FY Subtotal Support and Management Property None 315 FY 1999 FY 2000 FY Subtotal Product Development 80,551 1,802 FY 2000 FY Subtotal Support and Management 80,551 3,497 FY Total Project 395,621 3,497 FY	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305119F Mediun	n Launch	Vehicles		id (9)	РРОЈЕСТ 67624A
Total Prior Budget Budget Budget Budget Budget EY 1999 EY 1999 EY 2000 EY 20	Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Description Vehicle Date Product Development Property None Support and Management Property None Test and Evaluation Property	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Dana 5 of 5 Danas	Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999 315,070 80,551 395,621	Budget EY 1999 1,695 1,802 3,497	Budget EY_2000	Budget EY 2001	Budget to Complete 0 0 0	Total Program 316,765 82,353 399,118
tages of stages	Project 67624A	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0305119F))5119F)

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RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305128	PE NUMBER AND TITLE 0305128F Secur	ity And I	PE NUMBER AND TITLE 0305128F Security And Investigative Activities	tive Acti	vities	PROJECT 671931
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
671931 TECH SURVEIL COUNTER MEAS EQPT	1,348	1,449	467	469	473	482	492	492 Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

programs. The purpose of CCI research is to improve AF and DoD Information Operations capability by enhancing AFOSI's ability to deter or prevent spies, hackers, or weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. AFOSI conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting saboteurs from manipulating, damaging, or stealing sensitive war fighting data or systems. Failing that, to investigate, identify, and prosecute those who do. While counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission provides security assessments to both AF and DoD facilities and their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing This element supports Technical Surveillance Countermeasures (TSCM), Computer Crime Investigations (CCI), and technical support to criminal and Development due to a need for modifications to present technology.

level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify nackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems.

cost-effective solutions. The intent is: to provide an Air Force-wide review of current infrastructure vulnerabilities; prioritize AF protection planning and integrate with Critical Infrastructure Protection identifies weaknesses in the Air Force Critical infrastructure, highlights critical countermeasures and acquires and deploys existing programs; identify gaps based on AF needs; direct studies to refine AF requirements.

Project 671931

1757

Page 1 of 6 Pages

Exhibit R-2 (PE 0305128F)

	RDT&E BUD	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhib	it)	DATE February 2000	2000
80DC 07 -	вирсет астилту 07 - Operational System Development	velopment	PE NUMBER AND TITLE 0305128F Security And Investigative Activities	and Investigative	Activities	РRОЈЕСТ 671931
3	A. Mission Description Continued	pan				
555555	FY 1999 (\$ in Thousands) \$953 Computer \$200 Remote cr \$50 Next gene \$75 Language \$70 Informatic	ds) Computer Crimes Investigative (CCI) equipment. RDT&E of CCI software Remote crime scene viewing. Worked to develop remote crime scene viewing capability Next generation Technical Surveillance Countermeasures (TSCM) receiver. Demonstration and validation of TSCM receiver software Language translation software. Strived to develop document translation software Information Technology (IT). Tested and evaluated IT products Total	(CCI) equipment. RDT&E of CCI software Vorked to develop remote crime scene viewing capab eillance Countermeasures (TSCM) receiver. Demons Strived to develop document translation software Tested and evaluated IT products	ility tration and validation o	of TSCM receiver softw	are
22222	FY 2000 (\$ in Thousands) \$75 Telephone \$75 Language \$50 Next gene \$1,249 Computer \$1,449 Total	Ids) Telephone/Computer LAN analyzer. Development of system software and hardware enhancements Language translation software. Continuing development of document translation software Next generation Technical Surveillance Countermeasures (TSCM) receiver. Continuing development of TSCM receiver software Computer Crimes Investigative (CCI) equipment. RTD&E of CCI software Total	zer. Development of system software and hardware enha Continuing development of document translation software sillance Countermeasures (TSCM) receiver. Continuing ducCI) equipment. RTD&E of CCI software	enhancements ware ing development of TS	CM receiver software	
23333	\$50 Telephone \$50 Next gene \$75 Language \$292 Computer \$467	Ids) Telephone/Computer LAN analyzer. Development of system software and hardware enhancements Next generation Technical Surveillance Countermeasures (TSCM) receiver. Continuing development of TSCM receiver software Language translation software. Continuing development of document translation software Computer Crimes Investigative (CCI) Equipment. RTD&E of CCI software.	zer. Development of system software and hardware enha sillance Countermeasures (TSCM) receiver. Continuing development of document translation software (CCI) Equipment. RTD&E of CCI software.	enhancements ing development of TS/ ware	CM receiver software	
3	B. Budget Activity Justification This program is in Budget Activit	B. Budget Activity Justification This program is in Budget Activity 7, Operational System Development, because its products are primarily for use in investigative activity of an operational nature.	cause its products are primarily 1	for use in investigative	activity of an operation	ıl nature.
3	C. Program Change Summary (\$ in Thousands)	(S in Thousands)				
555	Previous President's Budget (FY 2000 PBR) Appropriated Value	2000 PBR)	FY 1999 458 1,458	EY 2000 466 1,466	FY 2001 467	Total Cost TBD
<u> </u>	Aujusunens to Appropriated value a. Congressional/General Reductions	tions	-55	6-		
Ф	Project 671931	Pag	Page 2 of 6 Pages		Exhibit R-2 (PE 0305128F)	0305128F)

	RDT&E BUDGET ITEM JU		STIFICATION SHEET (R-2 Exhibit)	SHEET	(R-2 Exh	ibit)		DATE February 2000	ry 2000
91 01	вирсет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0305128F Secui	AND TITLE F Security	ש דוודנה Security And Investigative Activities	stigative	Activities	PROJECT 671931
9	C. Program Change Summary (\$ in Thousands) Continued	<u>ids) Continue</u>	" [1]		FY 1999	FY 2000		FY 2001	Total Cost
	b. Small Business Innovative Research				4			*XX# Y	1877
	c. Omnibus or Other Above Threshold Reprogram	am			:	7	∞		
	d. Below Threshold Reprogram								
	e. Rescissions				∞,				
(f. Other	á							TBD
<u>3</u> 9	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	BR			1,348	1,449	6	467	TBD
5	Significant Program Changes: \$1.0M Congressional add in FY 99 and FY 00								
3	D. Other Program Funding Summary (\$\sumsimes\$ in Thousands)	housands)							
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Complete	Total Cost
5	AF RDT&E								
3	Other APPN								
3	Automatic Data Processing 82	0	0	191	191	195	199		
	Equipment								
9	Radio Equipment 0	422	422	422	422	422	422		
9	Base Communication 1,000	0	0	0	0			0	1,000
5	Base Procured Equipment 0	0	0	0	0			0	0
3	Technical Surveillance 2,030	2,976	3,049	2,876	2,877				
(Countermeasures Equipment								
9	BA63/Security & Investigative								
	Activities/PE0305128F								
9	E. Acquisition Strategy	o panina nanina	المرتون وآران وثبه ا	orto to ortage	**************************************	of confeed to state		77	
	An major comacts within this riogram Eremen	r weie awai ue	u via sole sour	se cominaci uni	on the sensitive	vity of technoid	ogies involve	j	
п	Project 671931		Pag	Page 3 of 6 Pages				Exhibit R-2 (P	Exhibit R-2 (PE 0305128F)

RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000	000
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305128F Security And Investigative Activities		PROJECT 671931
(U) E. Schedule Profile	Y 1999 EY 200	EY 200	
(U) TSCM Receiver/Software Suite (U) Telephone/Computer LAN Analyzer (U) CCI Equipment (U) Information Technology (U) Language Translation Software (U) Advanced Crime Scene Viewing	2 X X E XX	E XX - 4 - 2 X X E XX	ω ×× 4
Project 671931	Page 4 of 6 Pages	Exhibit R-2 (PE 0305128F)	305128F)

	RDT&E PROGRAM ELEMENT	RAM ELE		//PROJECT COST BREAKDOWN (R-3)	OST BF	(EAKDO)	VN (R-3)		DATE Fe	February 2000	8
BUDG 07 -	вирсет астилту 07 - Operational System Development	Developme	nt		PE NUMBE 030512	PE NUMBER AND TITLE 0305128F Security And Investigative Activities	ty And Inv	estigative	Activities		PROJECT 671931
(2)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp				0001 XX	000	000 181		1000
5	Primary Hardware Development	lent]```;	278	75	9 10 3	50
<u>3</u> 9	Software Development Total						- <u>`</u>	1,0/0 1,348	1,374 1,449	. •	417
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannir	ig Information	(\$ in Thousand	ଷ						
3	Performing Organizations:										
	Contractor or	Contract									
	Government Performing	Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
•	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	AF Infrastructure Protection					1,884	0	0	0	0	1,884
	Studies	;									
	Product Development Organizations	zations		,	,		•	į	1		;
	Matrix Engineering	SS/FFP	Feb 98	N/A	N/A	264	20	20	20		414
	Sensys Technologies	SS/FFP	Mar 98	N/A	N/A	715	0	0	0		715
•	Army Research Lab	SS/FFP	Mar 99	N/A	N/A	75	275	75	75		200
	Sandia Natl Lab	SS/FFP	Feb 99	N/A	N/A	0	945	1,249	0		2,194
	Scyld Computing Service	SS/FFP	Mar 99	N/A	N/A	341	0	0	0		341
	Сагтега	SS/FFP	Mar 99	N/A	N/A	260	0	0	0		260
	Sydex	SS/FFP	Apr 99	N/A	N/A	20	0	0	0		20
	NSA	SS/FFP	Sep 98	N/A	N/A	134	0	0	0		134
	US DOT	SS/FFP	Mar 99	N/A	N/A	155	0	0	0		155
	TBD	SS/FFP	Mar 99	N/A	N/A	0	0	75	342		417
	Support and Management Organizations	ganizations									
	None										
	Test and Evaluation Organizations	tions									
	None										
Ā	Project 671931			Page	Page 5 of 6 Pages	es			Exhibi	Exhibit R-3 (PE 0305128F))5128F)

RDT&E PROGRAM ELEMENT	GRAM ELE		/PROJECT	COST BREAKDOWN (R-3)	DOWN (R	.3)	DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development	Developme	nt		PE NUMBER AND TITLE 0305128F Secul	TTLE Scurity And	ы ппе Security And Investigative Activities	e Activitie		PROJECT 671931
(U) Government Furnished Property: Control Metho Item Description Product Development Property None	operty: Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>	Total Prior to FY 1999	rior <u>Budget</u> 999 FY 1999	Budget 57 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Support and Management Property None Test and Evaluation Property Solutions Engineering C/FFF Fedsim SS/FF Lucent Tech SS/FF Subtotals AF Infrastructure Protection Studies Subtotal Product Development Subtotal Test and Evaluation Total Project	V C/FFP SS/FFP SS/FFP Studies ent agement n	Jun 99 Aug 99 Mar 99		0 69 91 Total Prior to FY 1999 1,884 1,994 160 4,038	Bud EY 19 1,2,	78 0 0 0 0 0 0 0 0 0 0 0 70 1,449 78 0 48 1,449	Dudget FY 2001 0 467 0 0 467 467	Budget to Complete 0	78 69 91 Total Program 1,884 5,180 238 7,302
Project 671931				Page 6 of 6 Pages			Exhib	Exhibit R-3 (PE 0305128F)	05128F)

	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 E)	chibit)		DATE	Februa	February 2000
80DG 07 -	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AN 0305137F	PE NUMBER AND TITLE 0305137F Nation	⊌ тп∟Е National Airspace System	ace Syst	tem		PROJECT 674090
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674090	0 National Airspace System (NAS)	1,777	0	200	201	204	0	0	0	107,871
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
(£)	A. Mission Description The DOD National Airspace System program will modernize the DoD Air Traffic Control (ATC) system in parallel with the Federal Aviation Administration (FAA) modernization. DoD will acquire, to the maximum extent practical, systems on contract with the FAA to reduce development costs and prevent duplication. The DoD NAS program provides systems and facilities compatible/interoperable with the FAA modernization, prevents DoD flight delays and cancellations, continues DoD's access into Special Use Airspace (SUA), provides transparent services to military and civil aircraft, replaces aging DoD ATC systems, and increases flight safety. The Military Airspace Management System (MAMS) will more effectively schedule and manage SUA. DoD military ATC and fighting/flying readiness will be maintained.	odernize the extent practic tible/interope unsparent ser II more effect	DoD Air Tı al, systems rable with t vices to mil	raffic Contro on contract v the FAA moi itary and civ lule and man	I (ATC) syswith the FA/demization, il aircraft, reage SUA.	tem in parall to reduce of prevents Do places aging	el with the levelopment D flight dela DOD ATC	Federal Avia costs and pi sys and canc systems, and ghting/flying	tion Admini event duplic ellations, cor 1 increases fl	stration (FAA) action. The DoD atinues DoD's ight safety. The
55555	FY 1999 (\$\\$\times\) in Thousands) \$800 Continued Military Airspace Management System (MAMS) development \$321 Completed NAS DoD subsystem analysis for each DoD site \$656 Continued radar and automation acquisition and test \$1,777 Total	Management System (I em analysis for each L on acquisition and test	System (M. for each Do n and test	AMS) devel D site	opment					
999	FY 2000 (\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\	35114F (ATCALS)	CALS)							
55555	FY 2001 (\$\frac{\psi}{\text{in Thousands}}\) \$110 Identify interface/interoperability improvements for NAS projects \$55 Perform risk reduction studies and software analyses \$35 Provide on-site engineering analyses \$200 Total	lity improver and softwar aalyses	nents for N e analyses	AS projects						
9	B. Budget Activity Justification This program is in budget activity 7, Operational System Development, because the DoD Air Traffic Control system is operational. NAS is not a new start program and no activities within the NAS projects will require congressional approval for a new start program.	stem Develop ngressional a	ment, beca	use the DoD a new start p	Air Traffic orogram.	Control syst	em is operat	ional. NAS	is not a new	start program and
Ą	Project 674090		Page	Page 1 of 5 Pages	Ş			Ш	xhibit R-2	Exhibit R-2 (PE 0305137F)

	RDT&E BUDGET ITEM JU	TEM		ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)		DATE February 2000	y 2000
8UD(07 -	BUDGET ACTIVITY O7 - Operational System Development	ment			PE NUMBER AND TITLE 0305137F Nation	AND TITLE	PE NUMBER AND TITLE 0305137F National Airspace System	System		PROJECT 674090
(2)	C. Program Change Summary (\$ in Thousands)	<u> Chousanc</u>	(\$1			FV 1000	HV 2000		EV 2001	Total Coet
<u> </u>	Previous President's Budget (FY 2000 PBR)	PBR)				1,780	1,756		201	109,635
<u>3</u> 9	Appropriated Value Adjustments to Appropriated Value					1,881	0	•		
	a. Congressional/General Reductionsb. Small Business Innovative Research					-101 -58				
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram	Reprogra	E			99				
	e. Rescissions f. Other					-10				
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	7 2000 PB	ጸ			1,777	Ü	0	-1 200	107,871
5	Significant Program Changes: None									
9	D. Other Program Funding Summa	nary (\$ in Th FY 1999	iousands) EX 2000	EY 2001	EX 2002	EY 2003	EY 2004	EY 2005	Cost to	Total Cost
58	AF RDT&E Other APPN		T Stilliage	Communication	A STITITION	A CONTINUE OF THE PROPERTY OF	A STILLING	Continue	Signification	
E	ement, BA 3 em code 833020,	13,735	44,997	58,663	62,663	53,549	47,553	47,583	Continuing	TBD
<u>5</u>	ement, BA 5 em code 86190A, (Initial Spares)	1,386	4,237	4,942	5,338	4,542	3,965	4,056	Continuing	TBD
<u> </u>	E. Acquisition Strategy All major contracts were awarded after full and open competition.	full and o	pen competit	ion.						
Ω.	Project 674090			Pag	Page 2 of 5 Pages				Exhibit R-2 (Exhibit R-2 (PE 0305137F)

	RDT&E BUDGET ITEM JUSTIFIC	STIFICATION SHEET (R-2 Exhibit)	IEET (R-	2 Exh	libit)			DATE		February 2000	000	
BUD. 07 .	BUDGET ACTIVITY 17 - Operational System Development	PE 03	PE NUMBER AND TITLE 0305137F Natio	ыр пт∟е National Airspace System	ıl Airs	pace	Syste	٤			PROJECT 674090	ст 90
(D)	F. Schedule Profile	, I	661 X			FY 2000	000			FY 2001		
		1 2	e 2	4	-	7	3	4	_	7	n	4
5	Acquisition Milestones											
9	Milestone II (MS II) (Jul 93)		4									,
9	Revised Acquisition Program Baseline		* *									
) E	Amended M.S. II. Acquisition Decision (Memorandum) Voice Switch I RIP Decision			*								
95	Voice Switch FRP Decision				*							
3	Radar LRIP Decision					×						
5	Automation LRIP Decision					×						
9	Radar & Automation Milestone III									×		
9	Contract Milestones											
9	Radar											
3	Contract Award (Aug 96)											
9	Complete radar OT&E							×				
3	Automation											
9	Contract Award (Sep 96)											
9	Complete automation OT&E							×				
3	Voice Switch											
9	Contract Award (Jul 95)											
9	Complete voice switch OT&E	*										
3	NAS IOC									×		
3	NAS FOC Apr 2010											
9	MAMS											
3	Contract Award (Nov 95)											
3	MAMS First Delivery/IOC	*										
9	MAMS Control Facility Activation						×					
	* Denotes completed event											
	X Denotes planned event											_
ם	Project 674090	Page 3 of 5 Pages	F 5 Pages						Exhibit	Exhibit R-2 (PE 0305137E)	030513	Ή
		10000	259						TXI IXI			

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BF	(EAKDO)	WN (R-3)		DATE Fe	February 2000	8
970 04	вирсет аститу 07 - Operational System Development	Jevelopmei	 		PE NUMBER AN 0305137F		⊌टाग∟E National Airspace System	e System		a. 9	PROJECT 674090
(£)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(SI				FV 1999	666	FV 2000	ے	FV 2001
E	Software Develonment] ~	00%	777	×	0
9 (, -				
<u> </u>	Site Surveys						•	001			
<u> </u>							c) ///			
) E							4	†/2 \$\$			35
) E		0000									551
96	` _	yses valuation					v:	508			0
3		rt and Travel					•	40			30
<u> </u>	Total Note: EVON finds have been transferred to DE 35114F (ATC AT S) 1AW HAC middance on elimination of small dollar amount line items EVOI requires same action	transferred to D	F 35114F (AT	CALC) IAW HA	o midance	on elimination	1,	1,777	items FV01	emes serimon	200
. :			***		Paramine O					me cambai	
<u> </u>	B. Budget Acquisition History and Planning Informa	ry and Plannin	g Information	<u>ation (\$ in Thousands)</u>	<u>(s)</u>						
9	Performing Organizations:										
	Contractor or	Contract									
	Government	a	Award or	Performing	Project				,		1
	<u>Performing</u>	ing	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations	zations									
	Computer Based Systems	CPAF	Jun 94	3,500	3,500	3,500					3,500
	Hughes Aircraft/Raytheon	CPFF	Nov 95	13,534	13,534	12,705	829				13,534
	Raytheon (Radar)	IDIQ - FFP	Aug 96	18,275	18,275	17,875	429				18,304
	Raytheon (Automation)	IDIQ-FFP	Sep 96	5,862	3,005	3,005					3,005
	Litton-Denro	IDIQ-FFP	Jul 95	2,570	2,570	2,570					2,570
	Miscellaneous	FFP	Various	3,706	3,706	2,679					2,679
	Support and Management Organizations	anizations									
	MITRE	CPAF	Oct 94	21,910	21,805	21,805					21,805
	Martin Marietta	FFP	Sep 94	8,700	8,700	8,700					8,700
	Miscellaneous	Multiple	Multiple	32,624	30,815	30,815	40		200	405	31,460
	Project 674090			Pag	Page 4 of 5 Pages	es			Exhibit	Exhibit R-3 (PE 0305137F)	05137F)

	RDT&E PROGRAM ELEMENT	EMENT/F	PROJECT COST BREAKDOWN (R-3)	COST BF	₹EAKDO\	WN (R-3)		DATE Fe	February 2000	
80DC	вирсет астіліту 07 - Operational System Development	ent		PE NUMBER AN 0305137F		ытпе National Airspace System	e System		.9 .9	PROJECT 674090
(D)	Performing Organizations Continued: Test and Evaluation Organizations 46th Test Wing, PO Eglin AFB, FL	Multiple	2,135	2,235	1,835	479			·	2,314
(2)	Government Furnished Property: Contract Method/Type Item or Funding Description Vehicle Product Development Property None	e Award or Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Support and Management Property None Test and Evaluation Property									
	None Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project				Total Prior to FY 1999 42,334 61,320 1,835 105,489	Budget EX 1999 1,258 40 479 1,777	Budget FY 2000	Budget EY 2001 200 200	Budget to Complete 405	Total Program 43,592 61,965 2,314 107,871
<u>a</u>	Project 674090		ğ	Page 5 of 5 Pages	Sež			Exhib	Exhibit R-3 (PE 0305137F)	5137F)

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	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 E)	chibit)		DATE		February 2000
8UDG 07 -	вирсет астилту 07 - Operational System Development			PE NUMBER 0305138	PE NUMBER AND TITLE 0305138F INert	PE NUMBER AND TITLE 0305138F INCT Upper Stage (IUS)	age (IUS			РВОЈЕСТ 674053
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674053	3 Upper Stage Development (IUS)	552	0	0	0	0	0	0	0	17,422
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
(D)	A. Mission Description The Upper Stages Program provides consolidated acquisition of the Inertial Upper Stage (IUS) to support the launch of Defense Support Program (DSP) satellites. IUS is an upper stage on the Titan IV (or Shuttle) which delivers the DSP satellite to the required orbit. The RDT&E program continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness. It supports redesign of aging equipment and spares which are no longer manufactured or available, investigates flight anomalies, and performs small studies to assist in defining future upper stages. Funding is combined with the Titan Space Launch Vehicles Program (35144F) beginning in FY00.	quisition of t lelivers the I ss. It suppoi in defining	he Inertial U SSP satellite ts redesign future upper	Jpper Stage (s to the requi of aging equ r stages. Fun	TUS) to sup red orbit. T ipment and ding is com	port the laun he RDT&E _I spares which bined with th	ich of Defen program con 1 are no long he Titan Spa	se Support I tinuously ev ger manufact ce Launch V	Program (DS valuates and tured or avai Vehicles Pro	iP) satellites. IUS improves upper lable, investigates gram (35144F)
999	FY 1999 (\$ in Thousands) \$552 Funds being reprogrammed for \$552 Total	r higher prio	higher priority Air Force items	ce items						
999	FY 2000 (\$ in Thousands) \$0 No Activity \$0 Total									
999	FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total									
<u> </u>	B. Budget Activity Justification This program is categorized in Budget Activity 7, Operational Systems Development, because the Inertial Upper Stage Program is fully operational.	oerational Sy	stems Deve	lopment, bec	ause the Ine	ıtial Upper S	Stage Progra	ım is fully o	perational.	
P.	Project 674053		Page	Page 1 of 5 Pages	s				Exhibit R-2	Exhibit R-2 (PE 0305138F)

	III WETI TERMINE	CET ITER		ACITY OF	PULLET	STIEICATION SHEET (B 2 Exhibit)	 		DATE	
		11E			SUEEI	(ת-ב באוו	וטוני)		Februa	February 2000
BUD(07 -	BUDGET ACTIVITY 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305138F Inert	PE NUMBER AND TITLE 0305138F Inert Upper Stage (IUS)	per Stage	(SNI)		PROJECT 674053
(U)	C. Program Change Summary (\$ in Thousands)	' (\$ in Thousan	(spi			FV 1999	FY 2000		FV 2001	Total Cost
ΩIJ	Previous President's Budget (FV 2000 PBR)	7 2000 PRR)				858	17		1002	TOTAL COST
9	Appropriated Value	(3171 0007				558		. 0	>	
3	Adjustments to Appropriated Value	ılue						•		
· /	a. Congressional/General Reductions	tions				ဂု				
	b. Small Business Innovative Research	search								
·	c. Omnibus or Other Above Threshold Reprogram	eshold Reprogr	am							
	d. Berow Tilleshold Neprogram e. Rescissions					۲,				
	f. Other)				
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	nce FY 2000 Pl I PBR	BR			552		0	0	17,422
9	Significant Program Changes: Beginning in FY00, funding is transferred to the Titan	ransferred to the	e Titan Space l	Launch Vehicl	Space Launch Vehicles Program (35144F).	5144F).				
3	D. Other Program Funding Summary (\$\subseteq\$ in Thousands) FY 1999 FY 2000	mmary (\$ in T FY 1999	housands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
99	AF RDT&E Other APPN								1	
3	Missile Procurement, Budget	42,962	0	0	0	0	0	0	0	1,242,104
1	Activity 5, P-25, PE 0305138		;	;						
<u> </u>	Related RDT&E: PE 0305144F Titan Space		100	63						
	Launch Vehicles, IUS portion,									
	beginning FY00									
3	E. Acquisition Strategy Components are currently in storage awaiting integration for launch.	age awaiting int	tegration for la	unch.						
٥	Droject 674053			Ğ	Dans 7 of 5 Dans				י כ ם :יינייים	Evribit D 9 (DE 0306138E)
_	igent of 4033			Га	gc 2 01 3 rages				באווטוו ה-2	TE USUS 130F)

RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
вирсет Астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305138F Inert Upper Stage (IUS)	PROJECT 674053
(U) F. Schedule Profile	FV 1999	EV 2001
 (U) DoD Launches (DSP with IUS) (Last IUS mission in FY02) * Completed event X Planned event 	4 ×	1 2 3 4 X
Project 674053	Page 3 of 5 Pages	Exhibit R-2 (PE 0305138F)

L	RDT&E PROGRAM ELEMENT	SRAM ELE	MENT/P	//PROJECT C	SOST BE	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
80DC	BUDGET ACTIVITY 107 - Operational System Development	Developme	ıt		PE NUMB 030513	PE NUMBER AND TITLE 0305138F Inert Upper Stage (IUS)	pper Stag	e (IUS)		9	РКОЈЕСТ 674053
(3)	A. Project Cost Breakdown (\$ in Thousands)	ı (\$ in Thousan	(Sp				EV 1000	000	TV 2000	ç	EV 2001
99	Funds being reprogrammed for higher priority Air Force items Total	for higher priorit	y Air Force it	ems				552 552 552		300	0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	g Informatio	n (\$ in Thousan	ds)						
9	Performing Organizations:	(
	Contractor or Government	Contract Method/Type	Award or	Performing	Project						
	<u>Performing</u> Activity	or Funding Vehicle	Obligation Date	Activity	Office FAC	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
	Product Development Organizations	izations						7777	1000		11114VII
<u> </u>	Boeing	SS/FPI/AF	Jul 85	906,671	942,335	6,148	0	0	0	0	6,148
	Boeing	SS/FPI/AF	Mar 91	151,189	158,055	1,991	0	0	0	0	1,991
	Boeing	SS/CPAF/LOE Sep 90	Sep 90	0	4,064	4,064	0	0	0	0	4,064
	Boeing	SS/CPAF	Jun 97	0	10	10	552	0	0	0	295
	United Tech Corp/Pratt &	SS/CPFF	Mar 95	N/A	855	855	0	0	0	0	855
	Whitney										
	Note: EAC amounts include funds used for IUS under previous Program Elements	funds used for I	US under pre	vious Program El	lements						
	FY99 funds budgeted to Boeing were reprogrammed for higher priority Air Force items	ing were reprogr	ammed for hi	gher priority Air	Force items						
	Support and Management Organizations	ganizations	4/14	177	,	,	c	<	c	c	000
	Space and Missile Systems Center I A AFB	N/A	N/A	K/N	2,802	2,802	0	>	>	0	2,802
	Test and Evaluation Organizations	ations									
	None										
9	Government Furnished Property:	operty: Contract									
	Itom	Method/Type	Award or Obligation	Delivery		Total Drior	Budget	Budget	Budget	Budget to	Total
<u>.</u>	Description	Vehicle	Date	Date		to FY 1999	EX 1999	FY 2000	FY 2001	Complete	Program
۵	Project 674053			Pa	Page 4 of 5 Pages	çes			Exhibi	Exhibit R-3 (PE 0305138F)	05138F)

RDT&E PROGRAM ELEMENT	NT/PROJEC	/PROJECT COST BREAKDOWN (R-3)	NN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development		PENUMBER AND TITLE 0305138F Inert Upper Stage (IUS)	pper Stag	e (IUS)		₽	PROJECT 674053
(U) Government Furnished Property Continued: Contract Method/Type Awai Item or Funding Oblig Description Vehicle Date Product Development Property None Support and Management Property None Test and Evaluation Property	d: Award or Obligation Delivery Date Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
None Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project		Total Prior to FY 1999 13,068 3,802 16,870	Budget EY 1999 552 0 552	Budget EY 2000 0 0 0	Budget EY 2001 0 0 0	Budget to Complete 0 0 0	Total Program 13,620 3,802 17,422
Project 674053	·	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0305138F)	5138F)

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RDT&E BUDGET ITEM JI	JSTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305144	PE NUMBER AND TITLE 0305144F Titan	Space La	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles	hicles		PROJECT 674135
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674135 Titan II/IV	69,823	44,777	25,815	27,065	0	0	0	0	3,075,067
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Inertial Upper Stage (IUS), and Centaur]. In addition, the Titan IV program has developed a new vehicle configuration, the Titan IVB, with solid rocket motor upgrade capability to launch the largest of these satellites into near-earth or geosynchronous orbits from either the east or west coast launch facilities. Titan IV is used to launch National security requirements dictate a continuing, highly reliable means of placing critical DoD satellites into required orbits. The Titan IV program provides the Air Force, National Reconnaissance Office, and NASA payloads. This program provides several different configurations of the Titan IV [No Upper Stage (NUS), (SRMU), new avionics and ground support equipment to meet reliability and increased performance requirements. This program provides continuing integration support to the payload community as well as continuing engineering support to maintain system characterization and reliability.

且 Since FY94, this program element also included funding for sustaining engineering, payload integration, and government costs for the Titan II space launch vehicle. non-recurring integration for Milstar satellites. Remaining activities are maintaining sustaining engineering and anomaly resolution capability through the end of the FY96, program office support was moved to procurement funding. Major RDT&E activities are static test firing of the requalified Titan IV SRMU in 3QFY00, and

Beginning in FY00, the Inertial Upper Stages Program (PE 35138F) is combined into the Titan program and provides consolidated acquisition of the IUS to support the orbit. The RDT&E program continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness; supports redesign of aging equipment launch of Defense Support Program (DSP) satellites. IUS is an upper stage on the Titan IV (can be modified for Shuttle) and delivers the DSP satellite to the required and spares which are no longer manufactured or available; investigates flight anomalies; and conducts small studies to assist in defining future upper stages.

(U) FY 1999 (\$ in Thousands)

Continued Solid Rocket Motor Upgrade (SRMU) requalification	Continued integration for Milstar	Titan Hardware Redesign and Obsolescence
(U) \$43,006	\$19,727	\$2,580
9	3	9

Air Force Research Lab (Phillips) support to SRMU Requalification Project \$4,510 3

U) \$69,823 T

Page 1 of 5 Pages **Project 674135**

Exhibit R-2 (PE 0305144F)

1375

	RDT&E BUDGET ITEM JUSTIFICATIO	JSTIFICATION SHEET (R-2 Exhibit)	ibit)	DATE Februa	February 2000
BUDC 07	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305144F Titan Sp	וס דוד∟E Titan Space Launch Vehicles	hicles	PROJECT 674135
<u>(3</u>	A. Mission Description Continued				
555555	\$16,293 Completed Solid Rocket Motor Upgrade (SRMU) requalification \$24,570 Continue integration for Milstar \$1,698 Titan Hardware Redesign and Obsolescence \$2,116 Air Force Research Lab (Phillips) support to SRMU Requalification Project \$1,000 Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items \$44,777 Total	equalification Requalification Project ions for potential anomalies a	nd obsolete items		
9999	FY 2001 (\$ in Thousands) \$25,752 Continue integration for Milstar \$63 Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items \$25,815 Total	ions for potential anomalies a	nd obsolete items		
<u>(</u>	B. Budget Activity Justification This PE is in Budget Activity 7, Operational Systems Development, because Titan II, Titan IV anvehicles. Major Titan IV efforts remaining are SRMU requalification and MILSTAR integration.	Development, because Titan II, Titan IV and the Inertial Upper Stage are in production and are operational J requalification and MILSTAR integration.	nertial Upper Stage a	e in production and are	operational
9	C. Program Change Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	Total Cost
93	Previous President's Budget (FY 2000 PBR) Appropriated Value	77,176 77,443	45,379 45,379	26,062	3,083,511
9	Adjustments to Appropriated Value a. Congressional/General Reductions	-267	-3		
	 b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions 	-4,497 -391	-246		
23	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	69,823	44,777	-247 25,815	3,075,067
T.	Project 674135	Page 2 of 5 Pages		Exhibit R-	Exhibit R-2 (PE 0305144F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	GET ITE	M JUSTIF	ICATION	SHEET (R-2 Exh	ibit)		DATE		February 2000	0
800 01	вирсет Астіліту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305144F Titan	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles	ace Lau	nch Veh	icles		PR 67	PROJECT 674135
9	C. Program Change Summary (\$ in Thousands) Continued	(\$ in Thousa	nds) Continuec	-								
5	Significant Program Changes: FY99 funding was reprogrammed to higher Air Force priorities. DSP-22 delayed from Jul 02 to Oct 02.	ed to higher Ain	r Force prioritie	s. DSP-22 del	layed from Jul	02 to Oct 02.						
(3	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	mmary (\$ in T EX 1999 Actual	Chousands) FY 2000 Estimate	FX 2001 Estimate	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Fstimate	EX 2005 Estimate	105 1afe	Cost to		Total Cost
99	Other APPN Missile Procurement, Budget Activity 5, Other Support (P-1 27)	535,612	429,260	0 469,720	370,450	51,433	28,126		0 %	0		6,853,275
9	E. Acquisition Strategy The program has implemented a revised acquisition strategy for the 39-vehicle program. During FY1996, Titan IV transitioned from the old '85-C-0019' development/production and payload integration contract to new contracts designed to improve cost accountability, correct contract discrepancies, and establish an overall programmatic view for the effort to complete the program. The new contracts combine Titan II and Titan IV production, storage, pad maintenance and deactivation, launch operations, anomaly resolution, development and hardware requalification, payload integration, and program studies to provide the greatest potential for cost savings by maximizing use of resources and eliminating duplicative processes.	revised acquisi load integration e effort to com momaly resolu	tion strategy for contract to ne plete the progration, development and eliminating	r the 39-vehicl w contracts de im. The new ont and hardwo	le program. Du ssigned to improcontracts combi are requalificati processes.	rring FY1996 ove cost accoi ine Titan II ar ion, payload i	, Titan IV tra untability, cc Id Titan IV F ntegration, a	ansitioned 1 orrect controroduction, oroduction, and program	from the c act discre storage, j n studies	old '85-C-0(spancies, an pad mainter to provide t	019' id establish nance and ihe greatest	an potential
9	F. Schedule Profile			-	FY 1999	4	E	EY 2000	4	-	FY 2001	<u> </u>
555555	Assess Titan IVA-20 mishap Complete Titan IVA-20 Return to Flight Activities Begin assessment of Titan IV B-27 and B-32 mishaps Complete Titan IV B-27 and B-32 Return to Flight Activities Test firing of SRMU for requalification Milstar launches (Milstar 6 in May 02) Last Titan Launch (DSP-22 in Oct 02) *completed event X planned event	o Flight Activi 27 and B-32 m 2 Return to Fli ication ay 02) ct 02) event	ties ishaps ght Activities	**	n * * *	ŧ	- *	n ×	· ×	•	n ×	†
ഥ	Project 674135			Pag	Page 3 of 5 Pages					Exhibit R-2	Exhibit R-2 (PE 0305144F)	5144F)
					1377							

	RDT&E PROGRAM ELEMENT	ZAM ELE	MENT/PR	I/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	WN (R-3)		DATE Fe	February 2000	00
BUD(07	BUDGET ACTIVITY 17 - Operational System Development	evelopmer	<u></u>		PE NUMBE 030514	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles	pace Lau	nch Vehic	les	9	PROJECT 674135
<u>(2</u>	A. Project Cost Breakdown (\$ in Thousands)	\$ in Thousand	S				FV 1999	666	FY 2000		FY 2001
93	Titan IV Contract Costs R&D (96-C-0035) Contract Costs Unified Payload Integration (98-C-0005)	(96-C-0035) d Integration (9	8-C-0005)				43,0	43,006	16,293	21 C	25.752
3333	Titan Hardware Redesign & Obsolescence Inertial Upper Stage Study & Design Changes Facility Support	bsolescence Design Changes					4, 4,	2,580 0 4,510 69,823	1,698 100 2,116 44,777		0 63 0 25,815
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	y and Planning	g Information	(\$ in Thousan	ds)						
3	Performing Organizations:										
	ন ৮	Contract Method/Type	Award or	Performing	Project						
	Performing Activity	or Funding Vehicle	<u>Obligation</u> Date	Activity EAC	Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Development Organiz	ations)
		SS/FPIF	1QFY85		11,203,100	2,042,016				0	2,042,016
		SS/FPIF	1QFY85	678,715	678,715	72,504				0 0	72,504
	LMC 92-C-0028*	SS/CPAF	3QFY92 3OFV96	162,616	152,515	95,428	45 586	17 991		0 0	758 647
		SS/CFAF SS/CPAF	JQF I 90 1QFY98	294,617	293,027	18,756	19,727	24,570	25,752	26,965	115,770
		SS/CPAF	2QFY97	N/A	N/A	0	0	100	63	100	263
	Facilities	n/a	n/a 	•		0	4,510	2,116	0	0	6,626
	Note: EAC are total contract values while funding values are AF funds only * Contract closed	alues while fur	iding values are	e AF funds only	5~						
	Support and Management Organizations	nizations									
	Tecolote, SRS, TRW,			N/A	N/A	101,557				0	101,557
	esearch & Dev.	Development		N/A	N/A	33,068				0	33,068
	Aerospace Other Prgm Supprt			N/A N/A	N/A N/A	188,367 162,821				00	188,367 162,821
IL.	Project 674135			Pa	Page 4 of 5 Pages	ies			Exhibi	Exhibit R-3 (PE 0305144F)	05144F)

RDT&E PROGRAM ELEMENT/PROJI	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0305144F Titan Space Launch Vehicles	space Lau	nch Vehic		9	РРОЈЕСТ 674135
(U) <u>Performing Organizations Continued:</u> Test and Evaluation Organizations None						, , , , , , , , , , , , , , , , , , , ,
(U) Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget EY 2001	Budget to Complete	<u>Total</u> Program
None Support and Management Property None Test and Evaluation Property						
Subtotals Subtotal Product Development Subtotal Support and Management	Total Prior to FY 1999 2,421,774 485,813	Budget FY 1999 69,823	Budget FY 2000 44,777	Budget FY 2001 25,815	Budget to Complete 27,065	Total Program 2,589,254 485,813
Subodai Test and Evaluation Total Project	2,907,587	69,823	44,777	25,815	27,065	3,075,067
Project 674135	Page 5 of 5 Pages			Exhib	Exhibit R-3 (PE 0305144F)	05144F)

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	RDT&	RDT&E BUDGET ITEM JU	_	ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	chibit)		DATE	February 2000	2000
BUDG	BUDGET ACTIVITY				PE NUMBER	PE NUMBER AND TITLE	,				PROJECT
- 20	Operational Sys	- Operational System Development			0305158	3F Taction	0305158F Tactical Terminals	nals			674395
	COST (\$ ir	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674395	5 Radio		161	0	238	242	248	253	257	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
Ð	A. Mission Description Tactical Terminals process near-repart of the Air Force Tactical Explementionality was transformed into and tactical intelligence sources. Tactical Terminal (MATT), and 3) and procuring MATT as an airborn Broadcast Service Modules (CIBS) Broadcast Service (IBS) terminals.	A. Mission Description Tactical Terminals process near-real-time threat information utilized by combat units/aircrews for mission planning and execution. This program was established as part of the Air Force Tactical Exploitation of National Capabilities (TENCAP) normalization effort. Recently, the Constant Source Operator Terminal (CSOT) functionality was transformed into the Combat Intelligence System (CIS). Tactical Terminals (TT) enable the war fighter to access critical data provided by national and tactical intelligence sources. The Tactical Terminals program involves three radio programs: 1). Tactical Receive Equipment (TRE), 2). Multi-mission Advanced Tactical Terminal (MATT), and 3). Joint Tactical Terminals (JTT). Currently over 150 TRE and MATT ground systems are deployed. Air Force is jointly developing and procuring MATT as an airborne qualified radio. The Air Force has deployed 80 MATT terminals. There are ongoing efforts to integrate the Common Integrated Broadcast Service Modules (CIBS-M) into the MATT, transforming the MATT into the JTT family of terminals. The MATT and JTT have been designated Integrate Broadcast Service (IBS) terminals.	rmation utilization to the specific spe	ed by com (TENCAI) 1 (CIS). Tanvolves th . Currently e has deploading the MA'	bat units/airv) normaliza actical Term ree radio pro y over 150 T yyed 80 MA'	rews for mi tion effort. I inals (TT) e grams: 1). ' RE and MA IT terminals TT family o	ssion plannii Recently, the nable the wa Factical Rec TT ground s There are f terminals.	ng and exec • Constant S r fighter to eive Equipn ystems are of ongoing eff	ution. This ource Opers access critic nent (TRE), deployed. A deployed. A outs to integ and JTT ha	mation utilized by combat units/aircrews for mission planning and execution. This program was establisl Capabilities (TENCAP) normalization effort. Recently, the Constant Source Operator Terminal (CSOT) ence System (CIS). Tactical Terminals (TT) enable the war fighter to access critical data provided by n. Is program involves three radio programs: 1). Tactical Receive Equipment (TRE), 2). Multi-mission Actinials (JTT). Currently over 150 TRE and MATT ground systems are deployed. Air Force is jointly devine Air Force has deployed 80 MATT terminals. There are ongoing efforts to integrate the Common Integrate the MATT into the JTT family of terminals. The MATT and JTT have been designated.	mation utilized by combat units/aircrews for mission planning and execution. This program was established as Capabilities (TENCAP) normalization effort. Recently, the Constant Source Operator Terminal (CSOT) sence System (CIS). Tactical Terminals (TT) enable the war fighter to access critical data provided by national als program involves three radio programs: 1). Tactical Receive Equipment (TRE), 2). Multi-mission Advanced ninals (JTT). Currently over 150 TRE and MATT ground systems are deployed. Air Force is jointly developing the Air Force has deployed 80 MATT terminals. There are ongoing efforts to integrate the Common Integrated, transforming the MATT into the JTT family of terminals. The MATT and JTT have been designated.
9999	FY 1999 (\$ in Thousands) \$89 Cor \$72 Cor	 Inds) Continue to plan and support integration on DoD aircraft and weapon systems Continue to support migration of MATT into next generation tactical terminal (JTT) Total 	ntegration on of MATT int	DoD aircr o next gen	aft and weap eration tacti	on systems cal terminal ((TTT)				
933	EY 2000 (\$ in Thousands) \$0 No \$0 Tot	inds) No Activity Total									
99999	EY 2001 (\$ in Thousands) \$145 In-P \$53 Req \$40 Tra \$238 Tot	nds) In-house contractor technical support. Required printing and reproduction of the JTT/MATT technical orders. Travel required to support Tactical Terminal program reviews and integration of the MATT into the JTT family. Total	upport. ction of the J tical Termina	IT/MATT. I program	technical or reviews and	ders. integration o	of the MATT	l into the JT	T family.		
Ą	Project 674395			Page	Page 1 of 4 Pages	S				Exhibit R-2 (Exhibit R-2 (PE 0305158F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	M JUSTIF	-ICATION	SHEET (R-2 Exhi	bit)	۵	DATE February 2000	y 2000
97 - 70	вирсет астіліту 07 - Operational System Development			PE NUMBER AND TITLE 0305158F Taction	AND TITLE Tactical	PE NUMBER AND TITLE 0305158F Tactical Terminals			PROJECT 674395
<u> </u>	B. Budget Activity Justification This Program Element is assigned in Budget Activity 7, operational systems. The Program Element also support Air Force.	tivity 7, Oper supports the	ational System Joint Tactical	Development Terminals/ Cor	because it invo amon Integrate	olves post-Mile ed Broadcast S	stone III effo ervice Modul	Operational System Development because it involves post-Milestone III efforts and supports development of is the Joint Tactical Terminals/ Common Integrated Broadcast Service Modules (JTT/CIBS-M) efforts for the	velopment of efforts for the
3	C. Program Change Summary (\$ in Thousands)	(spr			FY 1999	FY 2000		FY 2001	Total Cost
<u>e</u>	Previous President's Budget (FY 2000 PBR)				234	0		238	TBD
<u> </u>	Appropriated Value Adiustments to Appropriated Value				237	239			
	a. Congressional/General Reductions b. Small Business Innovative Research				<i>ւ</i> ት ሊ	-239			
	c. Omnibus or Other Above Threshold Reprogram	am)				
	d. Below Threshold Reprogram				-67				
	e. Rescissions				7				
	f. Other				0	0			TBD
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	BR			161	0		238	TBD
9	Significant Program Changes:								
3	D. Other Program Funding Summary (\$ in Thousands)	housands)							
	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99	AF RDT&E Other APPN								
<u> </u>	Other Procurement AF, 6,966	24,218	3,574	4,357	4,361	4,453	4,511	Continuing	TBD
	Budget Activity 3, Weapon System Code 832070 PE 305158								
٩	Project 674395		Pag	Page 2 of 4 Pages				Exhibit R-2 (F	Exhibit R-2 (PE 0305158F)

RDT&E BUDGET ITEM JU	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2000
ВUDGET АСТIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0305158F Tactical Terminals	PROJECT 674395
 (U) E. Acquisition Strategy - Technology transfer from the Naval Research Laborate procured during the first production option. Firm Fixed - The JTT/CIBS-M Program is managed by the Army's (be forwarded to PM-JTT (Army) by Aerospace Comman 	 E. Acquisition Strategy Technology transfer from the Naval Research Laboratory to the contractor. Evolutionary acquisition strategy for the MATT was implemented with a core capability procured during the first production option. Firm Fixed Price. The JTT/CIBS-M Program is managed by the Army's Communications-Electronics Command (CECOM). Air Force JTT and CIBS-M procurement requirements will be forwarded to PM-JTT (Army) by Aerospace Command and Control Intelligence Surveilance and Reconnasisance Center (AC2ISRC) 	s implemented with a core capability IBS-M procurement requirements will ISRC)
(U) E. Schedule Profile		
 (U) JTT Delivery (U) MATT Software Release (JTT CIBS-M) (U) MATT software Version Upgrade (SPAWAR) * denotes completed events X denotes planned events 	1 2 3 4 1 2 3 X X X X X X X X X X X X X X X X X X	4 1 2 3 4 X X X
Project 674395	Page 3 of 4 Pages	Exhibit R-2 (PE 0305158F)

	RDT&E PROGRAM ELEMENT		PROJECT CO	OST BE	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
8UD 07 .	вирсет астилту 07 - Operational System Development	ıent		PE NUMBE 030515	PE NUMBER AND TITLE 0305158F Tactical Terminals	al Termina	als		9	РКОЈЕСТ 674395
(1)	A. Project Cost Breakdown (\$ in Thousands)	ands)				FV 1000	000	FV 2000	Q	FV 2001
9	Software Development					3	42		3 0	1004
9	Program Management Administration (PMA)	(A)					34		0	93
39	m-nouse connactor recinical support Total						6. 161			238
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ning Information	(S in Thousand	ଜ						
3	Performing Organizations:									
	⊢ 1		3,50	,						
	Covernment Method/1ype	Deligation	reriorming A ativites	Trolect Office	Total Dries	Dudget	Dayloot	Dudgest	Dudast to	T. 10+0.T.
		Date	EAC	EAC	to FY 1999	FY 1999	EY 2000	FY 2001	Complete	Program
	ent Organiz									
	Allied Signal, Inc. FFP MDA911-93-C0008	June-98	96	96	54	41	0	0	0	95
	Support and Management Organizations									
	Mission Support	Ongoing			186	120	0	238	Continuing	TBD
	Test and Evaluation Organizations									
	,				Total Prior	Budget	Budget	Budget	Budget to	Total
	Subtotals				to FY 1999	FY 1999	EY 2000	FY 2001	Complete	Program
	Subtotal Product Development				54	41	0	0	0	95
	Subtotal Support and Management				186	120	0	238	TBD	TBD
	Subtotal Test and Evaluation									
	Total Project				240	161	0	238	TBD	TBD
	67490E		Ę	A of A Doc	;			ָ ֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֡֡֡֝֡֡֡֡֡֡֡֡֡֡֡֡֡֡	C.bihit D 2 / DE 02054595)E4E0E)
-	Project 6/4395		Fage	rage 4 oi 4 rages	SS			GIUX⊒	IT K-3 (PE U3	J2158F)

RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	(hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY Operational System Dovelopment	n Doxelonment			PE NUMBER AN	PE NUMBER AND TITLE	Motor Motor	Coipolog		ND TITLE Defence Metaerological Catallite Drogram	PROJECT C747E9
COST (\$ in Thousands)	ousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Complete	-
674758 DMSP Program		19,983	21,207	25,372	14,934	11,882	11,131	11,396	22,057	955,279
Quantity of RDT&E Articles	oles	0	0	0	0	0	0	0	0	0
The Defense Meteorological Satellite Prograr timely, quality weather information to effecting global weather data. It provides visible and information. This data is required over the enpolar-orbit at all times (sun-synchronous mea PDD/NSTC-2 directed convergence of DMS step towards full program convergence was a Satellite Operations Control Center (SOCC). booster and is currently scheduled to launch it Expendable Launch Vehicle (EELV) booster.	A. Mission Description The Defense Meteorological Satellite Program (DMSP) is a fully operational joint-service program supporting all military services. Operational commanders require timely, quality weather information to effectively employ weapon systems and protect DoD resources. DMSP is the DoD's most important and often the only source of global weather data. It provides visible and infrared cloud cover imagery (1/3 nm constant resolution) and other meteorological, oceanographic, and solar-geophysical information. This data is required over the entire earth to support global and theater military operations. At least two satellites are required in sun-synchronous, 450nm polar-orbit at all times (sun-synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). Presidential Decision Directive PDD/NSTC-2 directed convergence of DMSP with the National Oceanic and Atmospheric Administration's (NOAA) polar-orbiting weather satellite system. A key step towards full program convergence was achieved in FY98 when DMSP satellite operations consolidated with NOAA satellite operations at NOAA's Suitland, MD, Satellite Operations Control Center (SOCC). DMSP F-15 was launched on a Titan-II booster in Dec 99. DMSP F-16 will be the last DMSP to launch on the new Evolved Expendable Launch Vehicle (EELV) booster.	P) is a fully ploy weapon cover in to support atellites cros he National in FY98 wh F-15 was land of 2000.	operational systems an magery (1/2 global and is the equato Oceanic and en DMSP somethed on a like remaining	joint-service de protect Do 3 nm constantheater militar at the same 1 Atmospheri atellite opera Titan-II boong DMSPs, F	program su D resources. t resolution) try operation local sun tii c Administr tions consol ster in Dec 9	pporting all DMSP is t and other n DMSP is t The set of	military ser he DoD's m neteorologic two satellite of their 14 o AA) polar-o: NOAA satel ?-16 will be	vices. Opera ost importan al, oceanogr s are require rbits/day). I rbiting weath lite operation the last DM!	ational comma and often the and often the aphic, and so the in sun-synopresidential I her satellite is no at NOAA. SP to launch on the new Eventhe in the neventhe in the new Eventhe in the new Eventhe in the new Eventhe i	P) is a fully operational joint-service program supporting all military services. Operational commanders require bloy weapon systems and protect DoD resources. DMSP is the DoD's most important and often the only source of sloud cover imagery (1/3 nm constant resolution) and other meteorological, oceanographic, and solar-geophysical h to support global and theater military operations. At least two satellites are required in sun-synchronous, 450nm stellites cross the equator at the same local sun time on each of their 14 orbits/day). Presidential Decision Directive he National Oceanic and Atmospheric Administration's (NOAA) polar-orbiting weather satellite system. A key in FY98 when DMSP satellite operations consolidated with NOAA satellite operations at NOAA's Suitland, MD, F-15 was launched on a Titan-II booster in Dec 99. DMSP F-16 will be the last DMSP to launch on a Titan-II of 2000. The remaining DMSPs, F-17 through F-20, are all manifested to launch on the new Evolved
(U) \$12,593 Conti (U) \$12,593 Conti (U) \$1,195 Conti (U) \$1,910 Bega (U) \$505 Bega (U) \$565 Com (U) \$565 Com (U) \$3,215 Bega (U) \$19,983 Total	ids) Continued system integration and test, miscellaneous calibration and validation, and related support activities Continued Titan II integration effort (transition from Atlas E due to inventory depletion) Began EELV interface design (transition to EELV) Began Small Tactical Terminal (field portable weather terminal) Special Sensor Microwave Imager/ Sounder Completed Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3) Began integration studies & test analysis to retrofit DMSP satellites with Solid State Recorders (SSRs) Total	and test, miscellaneo effort (transition froi (transition to EELV) I (field portable wea weather terminal sof st analysis to retrofit	cellaneous c tion from A EELV) able weather inal softwa retrofit DM	nd test, miscellaneous calibration and validation, and related support activities effort (transition from Atlas E due to inventory depletion) (transition to EELV) (transition to EELV) [(field portable weather terminal) Special Sensor Microwave Imager/ Sounder (SSMIS) software upgrades weather terminal software upgrade for the next block of satellites (5D-3) at analysis to retrofit DMSP satellites with Solid State Recorders (SSRs)	d validation inventory d pecial Senso or the next b with Solid	, and related lepletion) rr Microwav lock of satel State Recore	i support act e Imager/ Si llites (5D-3) ders (SSRs)	· ivities ounder (SSIv	dIS) software	
Project 674758			Page	Page 1 of 7 Pages				Ш	exhibit R-2 (Exhibit R-2 (PE 0305160F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)		DATE February 2000	2000
8UD 07.	вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program	teorological Sa	atellite Program	PROJECT 674758
3	A. Mission Description Continued				
3	FY 2000 (\$ in Thousands)				
9	_	port activities			
9		itlas E due to inventory depletion)			
<u> </u>	54,4/2 Continue EELV interface design (transition to EELV) \$636 Continue Small Tactical Terminal (field portable weather terminal) SSMIS software upgrades) (ther terminal) SSMIS software up	grades		
3	0				
3	\$21,207 Total				
9	(\$ in Thousar				
9		port activities			
€	\$1,/18 Continue launch venicle integration effort \$1,/18 Continue RELY vinterface decim (transition to RELY)				
3	_	, ather Terminal) SSMIS software u	upgrades		
3		fit DMSP satellites with SSRs			
93	\$3,000 Continue SSMIS calibration and validation \$25,372 Total				
9	oot A offereter Tee				
9	B. Bruget, Activity of a statement of the control of the control of the control of the current operational DMSP constellation. This program is in Budget Activity 7, Operational Systems Development, because it supports the current operational DMSP constellation.	ecause it supports the current opera	tional DMSP conste	ellation.	
3	C. Program Change Summary (\$ in Thousands)				
		FY 1999	FY 2000	FY 2001	Total Cost
9	Previous President's Budget (FY 2000 PBR)	17,397	21,535	25,938	892,020
3	Appropriated Value	17,932	21,535		
9	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-770	45		-815
	 b. Small Business Innovative Research 	-517			-517
	c. Omnibus or Other Above Threshold Reprogram		-116		-116
	d. Below Threshold Reprogram	3,450			3,450
	e. Rescissions	-112	-167		-279
	f. Other				61,536
т	Project 674758	Page 2 of 7 Pages		Exhibit R-2 (PE 0305160F)	0305160F)
		7001			

	RDT&E BUDGET ITEM JU	T ITEN	M JUSTIF	ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)		DATE February 2000	, 2000
80c 07	BUDGET ACTIVITY 07 - Operational System Development	pment			PE NUMBER AND TITLE 0305160F Defen	AND TITLE - Defense	Meteorolo	ogical Sat	иртіть Defense Meteorological Satellite Program	PROJECT 674758
3	C. Program Change Summary (\$ in Thousands) Continued	Thousan	ids) Continue	" Öl		EV 1000	EV 2000		EV 2001) (
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	Y 2000 PI	BR			19,983	21,207	4	-566 -565 25,372	955,279
9	Significant Program Changes: Funding: FY99 adjusted: \$3,450 below threshold reprogramming for integration studies/analysis for solid state data recorders for DMSPs F-15 & F-16. FY91 adjusted: \$2,941 transferred to the Air Force Weather Agency for DMSP tactical terminals. \$2,375 added to fund solid state recorders. Total program costs increased due to definitization of outyear funding requirements.	d reprogr he Air Fo lefinitizat	amming for in ree Weather A ion of outyear	tegration studi egency for DM funding requii	ies/analysis for ISP tactical ten rements.	solid state dat: ninals. \$2,375	a recorders for 5 added to func	DMSPs F-15 1 solid state re	& F-16. corders.	
	Schedule: None									
	Technical: None									
3	D. Other Program Funding Summary (\$ in Thousands)	y (S in T	housands)							
	<u>FY</u>	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	EY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
9		•								
3										
<u> </u>	Missile Procurement/PE 40	40,607	35,775	68,582	48,695	58,176	50,069	49,134	88,600	2,091,556
	Line Item P-27)									
9	Other Procurement/PE 12	12,215	1,823	0	0	0	0	0	0	264,491
	(Line Item P-63) FY01 and									
	out funds transfered to PE									
	0305111F for DMSP tactical terminals									
	Related RDT&E:									
	PE 0603434F, National Polar-orbiting Operational Environmental Satellite System (NPOESS) PE 0305160N, DMSP (provides funds for Navy unique studies)	Operation for Navy	nal Environmen unique studies)	ntal Satellite S	ystem (NPOE	(SS)				
	Project 674758			Pag	Page 3 of 7 Pages				Exhibit R-2 (PE 0305160F)	E 0305160F)

RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	February 2000
вирсет аститу 07 - Operational System Development	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program	PROJECT Program 674758
(U) E. Acquisition Strategy Support and services contracts for the spacecraft, sensors, ground systems, and supporting software have been awarded to various contractors. No major milestone decisions remain. The program is focused on successful completion of current contracts and contractor support for spacecraft, sensors, and ground systems already procured.	d supporting software have been awarded to various contractors nt contracts and contractor support for spacecraft, sensors, and g	No major milestone ound systems already
(U) E. Schedule Profile 1	EX 1999 2 3 4 1 2 3 4 1	EY 2001 2 3 4
(U) Small Tactical Terminal Deliveries Complete (U) 5D-3 Spacecraft Delivery (S-20) (U) Satellite Launches (F-15/F-16) * = Completed event X = Planned event	*	
Project 674758	Page 4 of 7 Pages	Exhibit R-2 (PE 0305160F)
	1280	

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	/PROJECT C	OST BF	COST BREAKDOWN (R-3)	NN (R-3)		DATE Fe	February 2000	000
800 07	вирсет аститу 07 - Operational System Development	Developme	ı L		PE NUMBE 030516	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program	e Meteoro	logical S	atellite Pr	ogram	PROJECT 674758
9	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	ds)								
							FY 1999	88	FY 2000	9	FY 2001
9	Launch Vehicle Transition*						2,	2,145	5,432	2	3,400
9	Spacecraft Integration and Test#	sst#					6,5	6,880	3,984	₩	9,701
9	Calibration/Validation^							84	1,500	0	3,109
9	Algorithm Development						51	954	1,025	5	1,001
9	MARK IVB/STT Enhancements	ents					2,	2,143	1,076	2	497
9	Systems Engineering Support	+					4	4,775	4,765	5	3,697
3	Program Management Support	Ĕ					3,(3,002	3,425	2	3,967
9	Total						19,5	19,983	21,207	7	25,372
	* Launch Vehicle Transition funding increases in FY00 due to critical studies & analysis required to integrate DMSP spacecraft to new EELV booster. Bulk of activity	funding increase	es in FY00 due	to critical studie:	s & analysis	required to int	egrate DMSP	spacecraft to	new EELV b	ooster. Bull	c of activity
	must be accomplished in FY00 to maintain integration and launch schedule for DMSP F-17, # Spacecraft Integration and Test funding increases in FY01 due to Special Sensor Microws	00 to maintain it Test funding in	regration and I reases in FY01	and launch schedule for DMSP F-17. FY01 due to Special Sensor Microwave Imager/Sounder (SSMIS) and Solid State Recorder integration	or DMSP F ensor Micr	-17. owave Imager/	Sounder (SSI)	(IIS) and Solid	1 State Record	der inteorati	Ę
	studies/analysis for DMSP F-17.	.17.						maa num (aux		magain ia	
	A Calibration/Validation funding increases in FY01 due to required Naval Research Laboratory calibration & validation of the first on-orbit SSMIS. DMSP F-16 scheduled to launch in early FV01 will correct the first SSMIS. Critical calibration will describe the first on-orbit SSMIS.	ling increases in	FY01 due to re	equired Naval Re	search Labo	pratory calibrat	ion & validati	on of the first	on-orbit SSN	IIS. DMSP	F-16
	data.	(anion valida	TOT ROW IS IN	למווכת וס כוומס	ic tile ilem set	ison to provid	e operationa	iiy usciui
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	(\$ in Thousand	ଜ						
3	Performing Organizations:										
	Contractor or	Contract	•								
	Government	Method/1ype	Award or	<u>Pertorming</u>	Project						
	Performing Activity	or Funding Vehicle	<u>Obligation</u> Date	Activity EAC	Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations	zations)
	Lockheed -Martin	SS/CPAF	Apr 92	3,764	3,764	3,764				0	3,764
	Lockheed-Martin	SS/CPAF	May 97	29,631	29,631	321	1,504	4,714	6,339	16,455	29,333
	Northrop-Grummn	SS/CPAF	May 95	5,926	5,926	1,615	3,896	0		0	5,511
***	TBD (OLS Sys Eng Spt)	TBD	Dec 00	750	750				150	009	750
	Lockheed-Martin	C/CPAF	Oct 88	39,513	39,513	39,513				0	39,513
	Harris	C/CPAF	Jun 94	8,329	8,329	5,551	1,533	1,133		0	8,217
ű.	Project 674758			Page	Page 5 of 7 Pages	es			Exhibit	Exhibit R-3 (PE 0305160F)	305160F)

Per Number Charlet Configurations Configurated System Development	76 u							
	Jan 97	PE NUMBER 0305160	RAND TITLE F Defens	e Meteoro	logical Sa	atellite Pro		РRОЈЕСТ 674758
Product Development Organizations MIPR Jan 97 2,986 2,986 2,421 5 Det 11/GSA MIPR Jan 97 2,986 2,986 2,421 1,521 1,521 1,521 1,523 1,530 1,530 1,530 2,531 1,37 1,57 3,01 3,01 3,01 3,01 3,02 3,01 3,02 3,01 3,02 3,01 3,02 3,02 3,02 3,02 3,02 3,02 3,02 3,02 3,02 3,02 3,02 3,02 <t< td=""><th>Jan 97</th><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Jan 97							
Det 11/GSA MIPR Jan 97 2,986 2,986 2,421 5 SMCCL (Titan) PO Oct 94 6,921 6,921 1,821 1,5 Aerojet SC/CPAF May 92 2,530 2,530 2,530 Aerojet C/CPAF/FFP May 98 85,979 85,979 85,979 Hughes SS/CPAF May 98 5,321 786 1,0 Hughes SS/CPAF May 98 5,321 786 1,0 NRL MIPR/Various Oct 95 371 1,5 4,055 5 NRL MIPR/Various Oct 95 371 1,854 7 3,231 1,36 Sandia MIPR/Various Oct 95 MIPR/Various Oct 95 2,304 2,304 Other Various Various Aug 95 4,522 1,2 Program Mgmt Various MORD* Aug 95 4,522 1,2 Program Mgmt Various Jul 91 1,809 1,809	Jan 97							
SMC/CL (Titan) PO Oct 94 6,921 1,821 1,52 Aerojet SS/CPAF May 92 2,530 2,530 2,530 Aerojet C/CPAF/FFP Max 89 85,979 85,979 85,979 Aerojet SS/CPFF May 96 5,321 5,321 786 1,0 Hughes MIPR/Parious Oct 95 371 117 4,055 5,231 1,3 AFRL MIPR/Various Oct 95 371 1,854 7 5,231 1,3 APL MIPR/Various Oct 95 5,231 1,854 7 5,231 1,3 SMC (Det 3 SSSG/NPOESS) FCAMIPR Dec 95 5,231 1,854 7 2,506 2,508 2,		2,986	2,421	595			0	2,986
Aerojet SS/CPAF May 92 2,530 2,530 2,530 Aerojet C/CPAF/FFP May 98 8,5979 85,979 85,979 Aerojet SS/CPAF May 96 3,711 371 157 Hughes SS/CPFF May 96 3,711 371 157 AFRL MIPR/Various Oct 95 4,055 5 NRL MIPR/Various Oct 95 2,301 1,354 Sandia MIPR/Various Oct 95 2,506 2,506 Sandia MIPR/Various Oct 96 2,506 2,343 3 Other Various Various Aug 95 2,343 3 Support and Management Organizations C/CPAF Aug 95 4,522 1,2 Program Mgmt C/CPAF Aug 95 4,522 1,2 Program Mgmt Various Jul 91 1,589 Other Various Aug 95 4,522 Historical Satellite Blocks Various Aug 95 4,5	Oct 94	6,921	1,821	1,543	1,288	1,718	79	6,449
Aerojet C/CPAF/FFP Max 89 85,979 85,979 1,0 Hughes SS/CPAF May 96 5,321 5,321 786 1,0 Hughes SS/CPAF May 96 371 371 157 786 1,0 Hughes SS/CPFF May 96 371 371 157 78 1,0 5 5 231 1,3 4,055 5 5 231 1,3 1,3 1,3 4 1,35 1,3	May 92		2,530				0	2,530
Aerojet SS/CPAF May 98 5,321 786 1,0 Hughes SS/CPFF May 96 371 371 157 AFRL MIPR/PD Oct 95 371 157 4,055 5 NRL MIPR/Various Oct 95 371 1,854 7 1,854 7 SMC (Det 3 SSSG/NPOESS) FCA/MIPR Dec 95 2,506 2,50	Mar 89		85,979				0	85,979
Hughes SS/CPFF May 96 371 157 4,055 5 AFRL MIPR/PD Oct 95 371 1,57 5,231 1,35 NRL MIPR/Various Oct 95 1,854 7 SMC (Det 3 SSSG/NPOESS) FCA/MIPR Dec 95 2,506 Sandia MIPR/Various Oct 96 2,343 3 Other Various Various 2,343 3 Historical Satellite Blocks Various 13,040 2,5 PRC/bd Systems C/CPAF Aug 95 4,522 1,2 Program Mgmt C/CPAF Aug 95 4,522 1,2 Litigation Support Various Jul 91 1,958 Historical Satellite Blocks Various Jul 91 1,958 Historical Satellite Blocks Various Jul 91 1,958 *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating and obligations *MORD - Miscellaneous Obligations 1,958 *MORD - Miscellaneous Obligation/Reimbursement Document -a ve	May 98		786	1,006	1,089	1,121	4,499	8,501
AFRL MIPR/PD Oct 95 4,055 5 NRL MIPR/Various Oct 95 5,231 1,354 7 APL MIPR/Various Oct 95 2,506 2,506 Sandia MIPR/Various Oct 96 2,00 2,00 Other Various 1,343 3 Historical Satellite Blocks Various 0ct 95 5,343 3 PRC/bd Systems C/CPAF Aug 95 4,522 1,2 Program Mgmt Various Jul 91 1,809 1,809 Other Various Jul 91 1,958 1,958 Historical Satellite Blocks Various Jul 91 1,958 1,958 Historical Satellite Blocks Various 38,530 1,958 *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligation/Reimbursement Document -a vehicle/method for committing and obligating NONE NONE	May 96	371	157	70	72	72	0	371
NRL MIPR/Various Oct 95 5,231 1,854 7 APL MIPR/Various Oct 95 1,854 7 SMC (Det 3 SSSG/NPOESS) FCA/MIPR Dec 95 2,506 200 Sandia MIPR/Various Oct 96 200 200 Other Various Avarious 2,343 3 Historical Satellite Blocks Various 0ct 95 13,040 2,5 PRC/bd Systems C/CPAF Aug 95 4,522 1,2 PRC/bd Systems C/CPAF Aug 95 12,809 1,809 Other Various Jul 91 1,809 1,809 Other Various Jul 91 1,958 1,958 Historical Satellite Blocks Various Jul 91 1,958 *WORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE NONE 1,958 1,958			4,055	570	1,144	2,825	3,406	12,000
APL MIPR/Various Oct 95 1,854 7 SMC (Det 3 SSSG/NPOESS) FCA/MIPR Dec 95 2,506 200 Sandia MIPR/Various Oct 96 200 200 Other Various 2,343 3 Historical Satellite Blocks Various 0ct 95 13,040 2,5 PRC/bd Systems C/CPAF Aug 95 4,522 1,2 PRC/bd Systems C/CPAF Aug 95 12,563 3,0 Program Mgmt Various Jul 91 1,809 1,809 Other Various Jul 91 1,958 1,958 Historical Satellite Blocks Various Jul 91 1,958 *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE NONE 1,956 1,958	MIPR/Various Oct 95		5,231	1,306	2,984	4,494	12,220	26,235
SMC (Det 3 SSSG/NPOESS) FCA/MIPR Dec 95 Sandia MIPR/Various Oct 96 Other Various Historical Satellite Blocks Various Support and Management Organizations FFRDC PRC/bd Systems C/CPAF Aug 95 Litigation Support Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatin SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			1,854	770	813	664	1,084	5,185
Sandia MIPR/Various Oct 96 Other Various Historical Satellite Blocks Various Support and Management Organizations FFRDC PRC/bd Systems C/CPAF Aug 95 PRC/bd Systems C/CPAF Aug 95 Litigation Support Utitigation Support Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligation SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			2,506				0	2,506
Other Various Historical Satellite Blocks Various Support and Management Organizations FFRDC MORD* Oct 95 13,040 2,5 Program Mgmt C/CPAF Aug 95 12,563 3,0 Litigation Support Various Jul 91 1,958 Historical Satellite Blocks Various Jul 91 1,958 Historical Satellite Blocks Various SMC/FM to committing and obligating SMC/FM to commit & obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligations *MONDE			200		420	200	1,950	2,770
Historical Satellite Blocks Various Support and Management Organizations FFRDC MORD* Oct 95 PRC/bd Systems C/CPAF Aug 95 Program Mgmt Litigation Support Other Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatin SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE	Various		2,343	373	123	125	525	3,489
Support and Management Organizations FFRDC MORD* Oct 95 PRC/bd Systems C/CPAF Aug 95 Program Mgmt Litigation Support Other Historical Satellite Blocks Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatin SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			583,786					583,786
FFRDC MORD* Oct 95 13,040 2,5 PRC/bd Systems C/CPAF Aug 95 4,522 1,2 Program Mgmt 12,563 3,0 Litigation Support Various 1,809 Other Various 1,958 Historical Satellite Blocks Various 38,530 *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatin SMC/FM to commit & obligate the funds programmed for Aerospace support. 38,530 Test and Evaluation Organizations NONE	gement Organizations							
PRC/bd Systems C/CPAF Aug 95 Program Mgmt Litigation Support Other Warious *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			13,040	2,575	2,712	2,775	6,670	27,772
Program Mgmt Litigation Support Litigation Support Uther Various Jul 91 Historical Satellite Blocks *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			4,522	1,270	1,290	922	3,874	11,878
Litigation Support Other Various Jul 91 Historical Satellite Blocks Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			12,563	3,002	3,425	3,967	20,500	43,457
Other Various Jul 91 Historical Satellite Blocks Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE			1,809				0	1,809
Historical Satellite Blocks Various *MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatir SMC/FM to commit & obligate the funds programmed for Aerospace support. Test and Evaluation Organizations NONE	Various		1,958				0	1,958
*MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligatire. SMC/FM to commit & obligate the funds programmed for Aerospace support. Iest and Evaluation Organizations NONE			38,530					38,530
M to commit & obligate the funds programmed d Evaluation Organizations	aneous Obligation/Reimbursement Document -a vehicl.	e/method for con	umitting and o	bligating fund	ls. In this case	e the program	office sends	a letter to
Test and Evaluation Organizations NONE		port.						
NONE	n Organizations							
								_
		, ;				L	1 (į
Project 674758		Page 6 of 7 Pages				Exhibit	Exhibit R-3 (PE 0305160F)	05160F)

RDT&E PROGRAM ELEMENT/PROJECT	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305160F Defense Meteorological Satellite Program	se Meteoro	ological Sa	atellite Pr		PROJECT 674758
(U) Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Date Product Development Property NONE Support and Management Property	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
NONE Test and Evaluation Property NONE Subtotals Subtotal Support and Management	Total Prior to FY 1999 744,433 72,422	Budget FY 1999 13,136 6,847	Budget FY 2000 13,780 7,427	Budget FY 2001 17,708 7,664	Budget to Complete 40,818 31,044	Total Program 829,875 125,404
Total Project	816,855	19,983	21,207	25,372	71,862	955,279
Project 674758	Page 7 of 7 Pages			Exhibi	Exhibit R-3 (PE 0305160F)	05160F)

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	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)		DATE	February 2000	ry 2000	
BUDG 07 -	вирсет астилту 07 - Operational System Development			PE NUMBER 0305164	PE NUMBER AND TITLE 0305164F NAVS	TAR GIO	bal Posit	ioning S	ystem (U	PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System (User 673028	_
				EQ) Space)	(e)						_,
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	
673028	28 Navstar GPS	36,944	49,244	946'99	50,425	50,469	50,535	50,653	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
9	A. Mission Description The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennae, antennae electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by all Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support. Due to increasing military GPS dependence and emerging Electronic Warfare (EW) threat, Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AOO).	ased radio posi ped together in development a d evaluation, aı m was establisl	tioning, nav sets to deriv nd testing, s nd mission s ned to addre GPS, and pr	igation, and ve navigatior tudies and elupport. Du ss EW soluti	time distribut and time in agineering to e to increasing ons for GPS il use of GPP il use of GPP.	I radio positioning, navigation, and time distribution system. GPS User Equipment (U) together in sets to derive navigation and time information transmitted from GPS satelli elopment and testing, studies and engineering to assist UE aircraft integration, software aluation, and mission support. Due to increasing military GPS dependence and emerg as established to address EW solutions for GPS. Key elements of GPS Modernization oir GPS, and preserving civil use of GPS outside the area of operations (AOO).	GPS User ansmitted fruitcraft integ GPS depende ents of GPS	Equipment on GPS sateration, software and em Modernizati rations (AO rations)	(UE) consist: ellites. Thes rare upgrades erging Electr on include p O).	s of standardized e receiver sets are s, product onic Warfare rotecting U.S.	
5555555555555555	FY 1999 (\$ in Thousand\$) \$731 Continued aircraft integration development testing \$3,324 Continued development and product improvement testing and evaluation \$2,890 Continue ACTD - Protection \$1,163 Complete ACTD - Prevention \$1,65 Complete Navwar modeling & simulation efforts Complete Navwar Evaluation Team (NET) support Continued support contract \$1,762 Continued GPS Receiver Application Module - Selective Availability An \$4,294 Continued SAASM development Continued SAASM development \$239 Completed Defense Advanced GPS Receiver (DAGR) study effort \$4,701 Began Advanced User Equipment Technology efforts Continued Modernization efforts \$1,504 Total	on development testing I product improvement to no on g & simulation efforts on Team (NET) support pplication Module - Seloment sed GPS Receiver (DAC ipment Technology efforts:	vement test efforts support ule - Selecti oer (DAGR)	ing and evalive Availabil	uation ity Anti-Spc	levelopment testing oduct improvement testing and evaluation simulation efforts cation Module - Selective Availability Anti-Spoofing Module (GRAM-SAASM) development nt GPS Receiver (DAGR) study effort ent Technology efforts ts	le (GRAM-	SAASM) de	velopment		
P	Project 673028		Page	Page 1 of 9 Pages	S			Ш	xhibit R-2 (Exhibit R-2 (PE 0305164F)	_
				1202							

	RDT8	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit) PATE Febru	February 2000
900 07	вирсет Астипт 07 - Operational Sy :	вирсет Астилту 07 - Operational System Development	PROJECT 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	PROJECT User 673028
<u>G</u>	A. Mission Description Continued	ion Continued		
9	FY 2000 (\$ in Thousands)	(spur		
5	\$736	Continue aircraft integration development testing		
99	\$5,070	Continue development and product improvement testing and evaluation Complete ACTD (Protection) objectives under Joint GPS Compat Evaluation (IGPSCF) Demo	ig and evaluation PS Combat Evaluation (IGPSCE) Demo	
3	\$11,000	Continue classified requirement		
9	\$4,500	Continue SAASM development		
9	\$6,100	Continue GRAM-SAASM development and begin platform demonstrations	form demonstrations	
99	\$3,685	Continue in-house support		
96	\$1,934	Continue advanced ITE technology affort (Deceivers)		
<u> </u>	\$0,500 \$2,950	Continue advanced OE technology effort (Anti-Jam Filters)	(fers)	
3	\$3,269	Continue advanced UE technology effort (Advanced Antenna)	interna)	
9	\$49,244	Total		
9	FY 2001 (\$ in Thousands)	(spur		
9	8659	Continue aircraft integration development testing		
9	\$16,000	Begin advance UE Protection development (Receiver, Antenna)	Antenna)	
9	\$2,300	Continue development and product improvement testing and evaluation	ig and evaluation	
9	\$13,100			
9	\$10,000	Continue Modernization efforts (SAASM M-Code development)	elopment)	
9	\$3,696	Continue in-house support		
96	\$2,116	Continue support contract		
<u> </u>	\$8,000	Continue of translated requirement		
<u> </u>	\$7,034	Continue advanced OE technology e11011 (Receivers)	nfounn)	
96	\$2,030	Continue advanced UE technology effort (Auti-Jam Filters)	uncania) Iters)	-
3	\$66,975	Total		
ш	Project 673028	Page	Page 2 of 9 Pages Exhibit R-2	Exhibit R-2 (PE 0305164F)
			1301	

AND TITLE - NAVSTAR Global Positioni se) UE passed Milestone IIB in January 1997		RDT&E BUDGET ITEM JU		STIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhi	bit)	DA	DATE February 2000	2000
	800 07	_{GET АСТІVІТ} - Operational System Developn	nent		PE NUMBER. 0305164F EQ) Spac	AND TITLE NAVSTA e)	R Global F	ositioning	g System (Use	РВОЈЕСТ ег 673028
	(D)	B. Budget Activity Justification This program element is in Budget Activi	ty 7 - Operational S	ystem Develop	ment, because	UE passed Mi	lestone IIB in J	anuary 1992.		
4000048	9	C. Program Change Summary (S in Th	onsands)			FV 1999	FY 2000		2001	Total Cost
4000048	9	Previous President's Budget (FY 2000 PE	(R)			36,234	53,963		,471	TBD
4000046	(E)	Appropriated Value				36,638	49,913			
4000046	9	Adjustments to Appropriated Value a. Congressional/General Reductions				-404	-10			
4000048		b. Small Business Innovative Research				-685	i			
4000048		c. Omnibus or Other Above Threshold Ru	program			825	-270			
4000048		d. Below 1 hreshold Keprogram e. Rescissions				-207	-389			
4000048		f. Other								TBD
4000040	99	Adjustments to Budget Years Since FY 2 Current Budget Submit/FY 2001 PBR	000 PBR			36,944	49,244		25,504 66,975	TBD
procurement to FY02. D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 FY 2001 FY 2002 FY 2004 FY 2004 AF RDT&E Actual Estimate Estimate Estimate Estimate Other APPN Other APPN 2,122 966 2,211 2,149 2,266 6,833 Operations and Maintenance 2,122 966 2,211 2,149 2,266 6,833 Operating Forces, SAG 13D) Aircraft Procurement (PE 35,295 35,449 39,290 57,452 76,549 89,559 0305164F, BA 7, Aircraft Aircraft Procurement (PE 36,559 36,559	9	Significant Program Changes: FY 2001 increase funds GPS UE Navwar	Anti-Jam Technolc	ogy/Modernizat	ion Security A	rchitecture (S/	AASM), develo	pment efforts.	Changed timing	ofDAGR
D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 FY 2001 FY 2002 FY 2003 FY 2004 I AF RDT&E Actual Estimate Estimate Estimate Estimate Estimate Other APPN Cherations and Maintenance 2,122 966 2,211 2,149 2,266 6,833 Operations and Maintenance 2,122 966 2,211 2,149 2,266 6,833 Operating Forces, SAG 13D) Aircraft Procurement (PE 35,295 35,449 39,290 57,452 76,549 89,559 0305164F, BA 7, Aircraft Aircraft Procurement (PE 36,290 57,452 76,549 89,559		procurement to FY02.								
AF RDT&E Other APPN Operations and Maintenance 2,122 966 2,211 2,149 2,266 6,833 (PE 0305164F, BA 1 - Operating Forces, SAG 13D) Aircraft Procurement (PE 35,295 35,449 39,290 57,452 76,549 89,559 11	()	D. Other Program Funding Summary (FY 19 Act	\$ in Thousands) 99	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Operations and Maintenance 2,122 966 2,211 2,149 2,266 6,833 (PE 0305164F, BA 1 - Operating Forces, SAG 13D) Aircraft Procurement (PE 35,295 35,449 39,290 57,452 76,549 89,559 11 0305164F, BA 7, Aircraft	53									
Operating Forces, SAG 13D) Aircraft Procurement (PE 35,295 35,449 39,290 57,452 76,549 89,559 0305164F, BA 7, Aircraft	<u>e</u>	nd Maintenance F, BA 1 -		2,211	2,149	2,266	6,833	6,715	Continuing	Continuing
	<u>6</u>		35	39,290	57,452	76,549	89,559	117,105	Continuing	Continuing
Project 673028	Į.	Project 673028		Pag	re 3 of 9 Pages				Exhibit R-2 (PE 0305164F)	E 0305164F)

	RDT&E BUDGET ITEM JU	GET ITE	M JUSTIF	CATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	ibit)	ũ	DATE February 2000	7 2000
800 07	вироет астіліту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305164F NAVS EQ) Space)	AND TITLE - NAVST/	\R Global ا	Positionin	PROJECT 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	PROJECT er 673028
(£)		mmary (\$ in T FY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
9		3,321	2,325	1,658	4,402	4,409	4,773	4,394	Continuing	Continuing
<u>(6)</u>	Electronics & Telecommunications Equipment, WSC 6730, P-62) OSD RDT&E (ACTD Funding: PE 0603750D) Related RDT&E: PE 0305165F, NAVSTAR GPS (Space/Grd Segments) PE 0604480F, GPS Block IIF PE 0305176F, Combat Survivor/Evader Locator	300 Space/Grd Seg Evader Locator	gments)				,			
9	E. Acquisition Strategy Several ongoing and planned concept definition and technology risk reduction programs will define and mature required GPS technologies needed for GPS Modernization. Our strategy will develop open system like architecture for a GPS receiver based on the GPS Receiver Application Module (GRAM) concept. The GRAM-SAASM program is a further risk reduction effort to integrate the GPS receiver operations internally between GRAM and SAASM. Also, several anti-jam technology risk reduction efforts will be pursued to mature technologies and prepare for technology insertion. Continue to work with platforms/users to identify requirements and upgrade paths to insert GPS enhancements.	ncept definition Il develop oper rther risk reduc will be pursue o insert GPS er	and technolog system like ar tion effort to in 1 to mature tec nhancements.	y risk reductio chitecture for a ntegrate the GF hnologies and	n programs wi a GPS receiver S receiver ope prepare for tec	Il define and no based on the rations internations internations insert	nature required GPS Receiver ally between G tion. Continue	l GPS technold Application M RAM and SA. to work with J	ogies needed for GI lodule (GRAM) co ASM. Also, sever platforms/users to i	PS ncept. The al anti-jam identify
9	F. Schedule Profile				FY 1999		FY	FY 2000	FY	FY 2001
<u>, , , , , , , , , , , , , , , , , , , </u>	Project 673028			Pap	Page 4 of 9 Pages				Exhibit R-2 (PE 0305164F)	E 0305164F)

RDT&E BUDGET ITEM JUSTIFIC	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)		DATE		February 2000	2000	
вирдет астіміту 07 - Operational System Development	PROJECT ON TITLE 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	ND TITLE NAVSTA 9)	R Glob	al Posit	ioning	Syste	m (Use	PROJECT 9 r 673028	ест 028
(U) E. Schedule Profile Continued	FY 1999		, part	Y 200	,	,	FY 2001	001	
(U) GPS ORD validation (U) GPS OIPT		4	1 X 2	m X	4	-	7	m	4
 (U) Advance UE Technology (ie Receiver, Antenna, Filter efforts) (U) Navwar AOA brief to JROC (U) Defense Science Board (U) GRAM-SAASM ICD Complete 	* *	*	*		×	×	×	×	×
(U) GRAM-SAASM preproduction prototypes deliveries				×					
Project 673028	Page 5 of 9 Pages					Exhibit	Exhibit R-2 (PE 0305164F)	. 03051	64F)
	1207								

	RDT&E PROGRAM ELEMENT/PROJECT	CT COST BREAKDOWN (R-3)	DATE	February 2000	
905 07	вирсет Астилту 07 - Operational System Development	PEOJECT 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	ositioning Sy	PRG Stem (User 67	РРОЈЕСТ 673028
(D)	A. Project Cost Breakdown (\$ in Thousands)				
4		FY 1999	•	FY 2000	FY 2001
<u> </u>	rechnical Support for Aircraft Integration Development & Product Improvement Testing	7.31		5,070	2,300
3	ACTD - Protection	2,890		3,500	0
3	ACTD - Prevention	1,163		0	0
3	Adv UE Protection development	0		0	16,000
3	Support Contracts	1,762		1,934	2,116
9	In-House Support	1,504		3,685	3,696
3	SAASM development	4,294		4,500	13,100
9	SAASM M-Code development	0		0	10,000
3	Navwar Evaluation Team (NET)	106		0	0
3	NAVWAR modeling & simulation	365		0	0
3	Classified Requirement	0	11	11,000	8,000
9	GPS Modernization/Stewardship	707		0	0
3	GRAM-SAASM development	15,158		6,100	0
9	DAGR study effort	239		0	0
9	Advanced UE technology efforts	4,701		0	0
9	Advanced UE technology efforts (Receivers)	0	9	6,500	7,054
9	Advanced UE technology efforts (Anti-Jam Filters)	0	2	2,950	2,000
9	Advanced UE technology efforts (Advanced Antenna)	0		3,269	2,050
9	Total	36,944		49,244	66,975
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	<u>housands)</u>			
3	Performing Organizations:				
ш	Project 673028	Page 6 of 9 Pages		Exhibit R-3 (PE 0305164F)	5164F)

RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PI	//PROJECT	COST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	0
вирбет астииту 07 - Operational System Development	Developme	nt		PE NUMBER ANI 0305164F EQ) Space)	PENUMBER AND TITLE 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	AR Globa	I Position	ing Syste	PF PF (User 6	РРОЈЕСТ 673028
(U) Performing Organizations Continued:	Ontinued:									
Contractor or	Contract									
Government	Method/Type or Funding	Award or, Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
OSD Withhold for Inflation						46			0	46
Savings Product Develonment Organizations	zatione									
Rockwell (MAGR)	C/FPIF/FFP/	Various	19,293	19,293	19,293	0	0	0	0	19,293
	CPAF									
DOE Sandia (SAASM)	MIPR	Feb 94	Continuing	Continuing	7,982	2,605	3,400	4,500	Continuing	TBD
	MIPR	Oct 95	092	160	599	0	0	0	0	599
Various (SAASM)	Various	Various	Continuing	Continuing	4,041	1,539	1,100	8,600	Continuing	TBD
TBD (SAASM M-Code)	TBD	Dec 00	Continuing	Continuing	0	0	0	8,000		8,000
Alliant Techsys Inc	C/CPFF	Oct 95	4,782	4,782	4,632	150	0	0	0	4,782
(SAASM)										
Multiple (NAVWAR PRDAs)C/CPAF)C/CPAF	Aug 96	13,440	13,440	13,440	0	0	0	0	13,440
Holloman AFB (Integration)	Project Order	N/A	Continuing	Continuing	2,549	731	736	629	Continuing	TBD
General Dynamics (Various)	Time and	Jan 96	1,810	1,810	1,810	0	0	0	0	1,810
	Materials									
Various (ACTD Prevention)	Various	Various	8,545	8,545	6,265	1,163	0	0	0	7,428
Various (ACTD Protection)	Various	Various	14,071	14,071	7,443	2,890	3,500	0	0	13,833
Adv UE Protection Dev	Various	Varions	TBD	TBD	0	0	0	18,000		18,000
Various (NET)	Various	Varions	10,413	10,413	10,228	901	0	0	0	10,334
Various (Classified	Various	Various	Continuing	Continuing	7,752	0	11,000	8,000	Continuing	TBD
Requirement)										
Various (GPS Modernization) Various	Various	Various	TBD	TBD	5,078	707	0	0	0	5,785
Various (Navwar M&S)	Various	Various	4,775	4,775	3,210	365	0	0	0	3,575
CeCom (DAGR study)	MIPR	Dec 97	385	385	146	239	0	0	0	385
1			1					i		ĺ
Project 673028			P	Page 7 of 9 Pages	;es			Exhib	Exhibit R-3 (PE 0305164F))5164F)

RDT&E PROGRAM ELEMENT	GRAM ELE		/PROJECT	COST BREAKDOWN (R-3)	EAKDOV	VN (R-3)		DATE Fe	February 2000	0
вирсет астилту 07 - Operational System Development	n Developme	nt		PE NUMBER AN 0305164F EQ) Space	PE NUMBER AND TITLE 0305164F NAVST EQ) Space)	AR Global	Positioni	ing Syst	PENUMBER AND TITLE 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	РКОЈЕСТ 673028
(U) Performing Organizations Continued:	s Continued:									
Product Development Organizations	nizations									
TBD (Handheld PRDA)	TBD	Apr 00	TBD	TBD	0		0	4,900	Continuing	TBD
Various (GRAASM)	PRDA	Jul 98	23,659	23,659	6,001	15,158	6,100	0	0	27,259
Support and Management Organizations	Organizations									
Overlook Sys (OASD/C3I)		Dec 95	Continuing	Continuing	15,266	1,762	1,934	2,116	Continuing	TBD
Aerospace Corp (Technical	CPFF	Various	Continuing	Continuing	928	0	2,112	2,112	Continuing	TBD
Supt)	Vorions	Vorions	Continuing	Suffinition of	7 584	725	877	617	200	Tar
(Shared Pro Cost)	A di lous	chora A	Similaring	Simulanig	1,004			710	Comming	
PRC (Technical Supt)	Time and	Dec 95	714	714	714	0	0	0	0	714
,	Materials									
Miscellaneous	Various	Various	Continuing	Continuing	3,025	928	905	972	Continuing	TBD
(In-house support)										
Advanced UE Tech Invest	Various	Various	4,655	4,655	0	4,655	0	0	0	4,655
(Tech Supt)										
Receiver Tech (Tech Spt)		Various	Continuing	Continuing	0	0	6,500	2,154	Continuing	TBD
Anti-jam Filter Tech (Tech	Various	Various	Continuing	Continuing	0	0	2,950	2,000	Continuing	TBD
Spt)										
Advanced Antenna (Tech	Various	Various	Continuing	Continuing	0	0	3,269	2,050	Continuing	TBD
Spt)										
Various	Various	Various	2,375	2,375	2,375	0	0	0	0	2,375
(Other Navwar Studies)										
Test and Evaluation Organizations	zations									
46th TG (SAASM/Test)	Project Order	Various	31,987	31,987	31,987	0	0	0	0	31,987
46th TG	Project Order	Various	Continuing	Continuing	1,469	3,324	5,070	2,300	Continuing	TBD
(UE develop & product										
testing)										
Project 673028			<u>a</u>	Page 8 of 9 Pages	,,,			Exhib	Exhibit R-3 (PE 0305164F)	5164F)
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RDT&E	RDT&E PROGRAM ELEMENT/PROJECT	CT COST BREAKDOWN (R-3)	WN (R-3)	:	DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational S y	вирсет Астилту 07 - Operational System Development	PROJECT 0305164F NAVSTAR Global Positioning System (User 673028 EQ) Space)	ΓAR Glob₂	al Position	ing Syste	PF Pm (User 6	PROJECT 673028
(U) Government Furnished Property: Continue Meth Item Description Product Development Property N/A Support and Management Property N/A Test and Evaluation Property N/A	ished Property: Contract Method/Type Award or or Funding Obligation Delivery Vehicle Date Date mt Property ement Property	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> <u>Program</u>
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	evelopment d Management valuation	Total Prior to FY 1999 100,469 26,892 33,456 160,817	Budget FY 1999 46 25,653 7,921 3,324 36,944	Budget FY 2000 25,836 18,338 5,070 49,244	Budget EY 2001 52,659 12,016 2,300 66,975	Budget to Complete 0 TBD TBD TBD TBD	Total Program 46 TBD TBD TBD TBD
Project 673028		Page 9 of 9 Pages			Exhibi	Exhibit R-3 (PE 0305164F)	5164F)

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	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	February 2000	y 2000
BUDGE 07 - (BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305165F NAVS	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)	TAR GP	S (Space			PROJECT 673030
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673030	673030 NAVSTAR GPS (Space & Control)	101,587	107,451	250,197	209,114	181,291	132,711		101,958 Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
7 * (£)	(U) A. Mission Description *Note: FY99 efforts funded in PE 64480F are described in this R-2 exhibit for program clarity.	oed in this R	-2 exhibit fo	r program cl	larity.					

This program element funds Research and Development for the NAVSTAR Global Positioning System (GPS) Space and Control segments of the overall GPS program. This includes: satellite development, procurement, and deployment; training simulators; Mission Operation Support Center (MOSC); and ground control segment operation, including sustaining engineering, space and ground segments upgrades, and R&D efforts to support the entire GPS system deployment.

to 12 Block IIR and the first 6 Block IIF satellites. Block IIR modernization includes adding a second civil signal and a new military signal to the last 12 satellites. The extended mean mission duration of Block IIA satellites currently on orbit. This PE also funds Modernization which includes adding new civil and military capabilities Starting with Block IIF, satellite vehicle 7, a higher power spot-beam antenna will be added to provide enhanced anti-jam capability. This budget request assumes a The program has been restructured since the FY00 PB submission. Block IIF satellites 7 through 9 procurement was delayed by two years (FY01 to FY03) due to first six Block IIF satellites will already include the second civil signal. They will be modernized to include a third civil signal (L5) and the new military signal. \$67.5M FY00 reprogramming action (\$18M procurement/\$45.5M RDT&E).

Funding for the civil portion of GPS Modernization (beginning in 2001) was previously included in the Department of Transportation budget request.

Thousands)	
(\$ in	
FY 1999	
- E	

<u> </u>	\$771	Continued system engineering, including Joint Spectrum Center (JSC) support and GPS Engineering Management (GEM) System development
3	(U) \$2,545	Continued training simulator development
3	(U) \$11,878	Completed Operational Control Segment (OCS) Consolidated Contract for Common Operator Support Environment (COSE), Block IIR Full
		Functionality, and continued OCS Architectural Implementation

OCS T
\$3,004
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•	4480F and PE 3510
)	ect (PE
	Continued GPS IIF direct inject (PE 64480F and PE 3510
	(U) \$11,064
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Project 673030

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Page 1 of 7 Pages

Exhibit R-2 (PE 0305165F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
8UD(07 -	вирсет астіvітY 07 - Operational Sy s	вирсет астипт 07 - Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)	PROJECT 673030
9	A. Mission Description Continued	on Continued		
9	FY 1999 (\$ in Thousands) Continued	nds) Continued		
<u> </u>	\$303 \$23,000	Continued GPS program support (PE 64480F and PE 35165F) Continued IIF satellite development (PE 64480F)	35165F)	
<u> </u>	\$2,838	Continued IIF satellite associated development includ 64480F)	Continued IIF satellite associated development including launch vehicle integration, award fees, and integration studies and services (PE 64480F)	on studies and services (PE
99	\$3,390 \$29,008	Continued clock technology development (PE 64480F) Continued IIF OCS development (PE 64480F)	F)	
9	\$2,791	Continued IIF OCS associated development including S system simulator development and studies (PE 64480F)	Continued IIF OCS associated development including Selective Availability Anti-Spoofing Module (SAASM) control segment (CS) changes, IIF system simulator development and studies (PE 64480F)	control segment (CS) changes, IIF
5	\$3,200	Continued GPS Modernization Space/Control development and technical support (PE 64480F)	pment and technical support (PE 64480F)	
39	\$101,587	Commed Of 3 reductingation technical support (FE Total	04+00F)	
9	FY 2000 (\$ in Thousands)	(spu		
9	\$1,103	Continue system engineering, including JSC support and GEM System development	and GEM System development	
99	\$1,685 \$12,917	Continue Control Segment training simulator development Continue development of OCS Architectural Implementation	oment entation	
3	\$300	Complete space long-range planning and analysis		
9	\$1,099	Continue IIA/IIF/IIR IMOSC development		
9	\$3,444	Complete IIF satellite development		
36	\$5,390	Continue IIF clock technology development Regin IIF Space Vehicle (SV) compatibility analysis		
3	\$1,882	Continue IIF satellite associated development includii	development including launch vehicle integration, award fees, and integration studies and services	n studies and services
9	\$2,250			
9	\$38,823	Continue IIF OCS development		
9	\$4,083 \$76 388	Continue IIF OCS associated development including SAA	Continue IIF OCS associated development including SAASM CS changes and IIF system simulator development	nent
3	\$5,052	Continue GPS Modernization technical support		
9	\$335	Continue GPS program support		
9_	\$107,451	Total		
<u>С</u>	Project 673030	Pag	Page 2 of 7 Pages	Exhibit R-2 (PE 0305165F)

Per NUMBER AND TITE Past NUMBER AND TITE		RDT&E BUDGET ITEM JUSTIFICATI	STIFICATION SHEET (R-2 Exhibit)	t)	DATE February 2000	000
A Mission Description Continued EY 2001 (S in Thousands) EX 2001 (S in Thousands) S1,100 Continue CS training simulator development of OCS Architectural Implementation S2,707 Complete development of OCS Architectural Implementation S2,820 Continue III ADMINITIATION MOSC development S2,434 Continue III FOCS associated development including launch vehicle integration, award fees, and integration studies and services S4,297 Continue IIF OCS development including launch vehicle integration, award fees, and integration studies and services S1,615 Continue IIF OCS development including SAASM CS changes and IIF system simulator development S16,400 Continue GPS Modernization Space-Control development (for all IIF and 12 IIR satellites) Continue GPS Modernization space-Control development (for all IIF and 12 IIR satellites) S10,750 Continue GPS Modernization Space-Control development because it is a post-Milestone III program. EX Badget Activity John When This program is in Budget Activity John When This program Change Summary (S in Thousands) EV 1992 EV 1992 EV 1992 PEV 2000 Pevious President's Budget (FY 2000 PBR) Pervious President's Budget (FY 2000 PBR) Pervious President's Budget (FY 2000 PBR) Adjustments to Appropriated Value Adjustments to Appropriated Value Adjustment was Development of Representations Continue of Other Above Threshold Reprogram C Bescissions Continue CPS Other Above Threshold Reprogram C Other Recissions C Other Above Threshold Reprogram C Other Above Threshold Reprogram C Other Above Threshold Reprogram C Other Recissions C Other Above Threshold Reprogram C Other Recissions C Other Recissions C Continue Statement Recise Recissions C C Development of CPS Above Threshold Reprogram C C C C C C C C C C C C C C C C C C C	8UDG 07 -	зет АСТІVITY Operational System Development	PE NUMBER AND TITLE 0305165F NAVSTAR	GPS (Space)		РРОЈЕСТ 673030
EY 2001 (S in Thousands) 1,100 Continue Cost training simulator development development as 1,731 Continue Cost training simulator development of OCS Architectural Implementation 28,202 Continue III Continue III Cost rechnology development 28,347 Continue III Cost rechnology development 28,347 Continue III SV compatibility analysis 28,454 Continue III CoSt associated development including launch vehicle integration, award fees, and integration studies and services 28,457 Continue III CoSt associated development including SAASM CS changes and III system simulator development 28,1615 Continue III CoSt associated development including SAASM CS changes and III system simulator development 28,1615 Continue III CoSt associated development including SAASM CS changes and III system simulator development 28,1615 Continue GPS Modernization space/Control development (for all IIF and 12 IIR satellites) 28,163,163 Continue GPS Modernization space/Control development (for all IIF and 12 IIR satellites) 28,163,163 Continue GPS Modernization space/Control development because it is a post-Milestone III program. B. Budget Activity A - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (S in Thousands) This program is in Budget (FY 2000 PBR) Appropriated Value 2. Crogram Change Summary (S in Thousands) Appropriated Value 3. Committees Innovative Research 3. Committees Innovative Research 3. Committees Innovative Research 4. Committees Innovative Research 5. Committees Innovative Research 5. Other	(9)	A. Mission Description Continued		i		
\$1,100 Continue System equineering, including ISC support and GEM System development \$1,311 Continue Straining simulator development development and continue grant development development development of OCS Architectural Implementation \$2,320 Continue IIF SOC Straining Simulator development of OCS Architectural Implementation \$2,347 Continue IIF Social development including SAASM CS changes and IIF system simulator development \$2,4454 Continue IIF Stellite associated development including SAASM CS changes and IIF system simulator development \$2,450 Continue IIF Social development including SAASM CS changes and IIF system simulator development \$2,450 Continue IIF OCS associated development including SAASM CS changes and IIF system simulator development \$2,550 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) \$2,50,100 Continue GPS program support \$2,50,100 Continue GPS programs S	9	FY 2001 (\$ in Thousands)				
15.731 Complete development of OCS Architectural Implementation 25.280 Continue IIA/IIF/IIR IMOSC development 25.280 Continue IIA/IIF/IIR IMOSC development 25.280 Continue IIA/IIF/IIR IMOSC development 25.280 Continue IIE A/IIF/IIR IMOSC development 25.280 Continue IIF Sock technology development 25.454 Continue IIF Sock technology development 25.455 Continue IIF Sock susceined development including SAASM CS changes and IIF system simulator development 25.450 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellities) 25.68,400 Continue GPS Modernization rechnical support 25.68,400 Continue GPS Modernization rechnical support 25.50,197 Total 25.20,197 Total 25.20,197 Total 25.20,197 Total 26. Program Change Summary (S in Thousands) 26. Previous President's Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. 27. Program Change Summary (S in Thousands) 26. Small Business Innovative Research 27. Committee Order Above Threshold Reprogram 27. Committee order Above Threshold Reprogram 27. Small Business Innovative Research 27. Committee order Above Threshold Reprogram 27. Committee order Above Threshold Reprogram 27. Small Business Innovative Research 27. Committee order Above Threshold Reprogram 27. Committee order Above Threshold Reprogram 27. Committee order Above Threshold Reprogram 27. Optober 27. O	9		oort and GEM System development			
22,820 Continue II A/IIF/IIR IMOSC development 23,454 Continue II A/IIF/IIR IMOSC development 23,455 Continue II Sate by development including launch vehicle integration, award fees, and integration studies and services 34,454 Continue II Sate life associated development including SAASM CS changes and IIF system simulator development 51,615 Continue IIF OCS development including SAASM CS changes and IIF system simulator development 51,615 Continue GPS Modernization behavior associated development (for all IIF and 12 IIR satellites) 51,630 Continue GPS Modernization technical support 52,501,97 Total 8. Badget Activity 7 - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$\frac{1}{2}\$ in Thousands) Previous President's Budget (FY 2000 PBR) Appropriated Value 2. Chord Appropriated Value 3. Consistent Research 3. Small Business Innovative Research 4. Small Business Innovative Research 5. Small Business Innovative Research 5. Small Business Innovative Research 6. Small Business Innovative Research 7. Combine of Other Above Threshold Reprogram 6. Rescissions 7. Other	99	Complete development of OCS	Jementation			
94,650 Continue IIF clock technology development 92,347 Continue IIF Stocknology development including launch vehicle integration, award fees, and integration studies and services 94,347 Continue IIF Stocknown IIIF Stocknown III	3	Continue IIA/IIF/IIR IMOSC de				
24.347 Continue IIF satellite associated development including launch vehicle integration, award fees, and integration studies and services 54.347 Continue IIF OCS development including SAASM CS changes and IIF system simulator development 51,615 Continue IIF OCS development including SAASM CS changes and IIF system simulator development 51,615 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) \$10,750 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) \$10,751 Continue GPS Modernization Space/Control development because it is a post-Milestone III program. \$250,107 This program is in Budget Activity Justification This program is in Budget Activity J. Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$in Thousands) Previous President's Budget (FY 2000 PBR) Previous President's Budget (FY 2000 PBR) Previous President's Budget (FY 2000 PBR) Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Ommibus or Other Above Threshold Reprogram c. Rescissions f. Other Project 673330 Project 6733330 Project 673330 Project 673330 Project 6733330 Project 673330 Project 6733330 Project 6733	9					
\$42,972 Continue IIF OCS development \$1,615 Continue IIF OCS development including SAASM CS changes and IIF system simulator development \$4,900 Begin GPS Launch/Early Orbit (LJEO) consolidation \$16,84,900 Continue GPS Modernization Recolor of the stabilities o	<u> </u>		luding launch vehicle integration. aw	ard fees, and integra	tion studies and services	
\$1,615 Continue IIF OCS associated development including SAASM CS changes and IIF system simulator development 54,900 Begin GPS Lamoch/Early Orbit (L/EQ) consolidation \$10,520 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) S10,750 \$10,750 Continue GPS Modernization technical support S250,197 \$10,751 Total B. Budget Activity Justification FY 1020 This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. FY 1020 C. Program Change Summary (\$\mathbb{S}\$ in Thousands) FY 1020 Previous President's Budget (FY 2000 PBR) 94,404 98,890 Appropriated Value 34,404 98,890 108,851 Adjustments to Appropriated Value -34,404 98,890 108,851 b. Small Business Innovative Research -34,134 -590 -1 c. Omnibus or Other Above Threshold Reprogram -58 -848 -848 f. Other Control -58 -848 -840bit R-2 (PED 3030	3	2	0			
\$4,900 Begin GPS Laumch/Early Orbit (L/EO) consolidation \$168,400 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) \$168,400 Continue GPS Modernization technical support \$751 Continue GPS Modernization technical support \$250,197 Total B. Budget Activity Justification Propertion of Continue GPS program support C. Program Change Summary (\$ in Thousands) FY 1929 FY 2000 Previous President's Budget (FY 2000 PBR) PR 2000 PR 2000 Previous President's Budget (FY 2000 PBR) 94,404 98,890 108,851 Appropriated Value -342 -1 -342 -1 Adjustments to Appropriated Value -3,134 -590 -590 A mall Business Immovative Research -3,134 -590 -590 Committee Of the Above Threshold Reprogram Base 3 of 7 Pages -848 Exhibit R-2 (PE 030 Project 673030 Project 673030 Pages 3 of 7 Pages Exhibit R-2 (PE 030	3		ling SAASM CS changes and IIF sysi	tem simulator develo	pment	
\$168,400 Continue GPS Modernization Space/Control development (for all IIF and 12 IIR satellites) \$10,750 Continue GPS Modernization technical support \$250,197 Total B. Budget Activity Justification EV 1999 FY 2000 This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. EV 1999 FY 2000 FY 2001 Previous President's Budget (FY 2000 PBR) Page 1990 PA,404 98,890 108,851 Appropriated Value Appropriated Value -34,24 108,890 108,851 Activisments to Appropriated Value -34,24 108,890 108,851 Activisments to Appropriated Value -34,24 108,890 -1 Activisments to Appropriated Value -34,24 -1 -590 Activity Activity Research -568 -848 -848 C. Omnibus or Other Above Threshold Reprogram -848 -848 Exhibit R-2 (PE 030 Project 673030 Page 3 of 7 Pages Exhibit R-2 (PE 030	9		tion			
\$10,750 Continue GPS Modernization technical support \$751 Continue GPS program support \$250,197 Total B. Budget Activity Justification Proceed of the program of the program of the program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$in Thousands) EY 1999 FY 2000 FY 2001 Previous President's Budget (FY 2000 PBR) Previous President's Budget (FY 2000 PBR) P4,404 98,890 108,851 Appropriated Value Adjustments to Appropriated Value -34,746 108,890 108,851 Adjustments to Appropriated Value -30,242 -1 -590 -590 Commibus or Other Above Threshold Reprogram Commibus or Other Above Threshold Reprogram -580 -888 -848 Exhibit R-2 (PE 030) A Below Threshold Reprogram Pages 3 of 7 Pages Pages 3 of 7 Pages Exhibit R-2 (PE 030)	9		elopment (for all IIF and 12 IIR satell	lites)		
\$751 Continue GPS program support \$250,197 Total B. Budget Activity Justification Program This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. FY 2000 C. Program Change Summary (\$ in Thousands) FY 1999 FY 2000 Previous President's Budget (FY 2000 PBR) PR 2000 PR 2000 Appropriated Value 94,746 108,890 108,851 Adjustments to Appropriated Value -342 -1 -1 Adjustments to Appropriated Value -342 -1 -590 Adjustments or Other Above Threshold Reprogram -342 -1 -590 G. Omnibus or Other Above Threshold Reprogram -548 -590 -548 Exhibit R-2 (PE 030 Project 673030 Prace 3 of 7 Pages Pages 3 of 7 Pages Exhibit R-2 (PE 030	9	.20				
B. Budget Activity Justification Total B. Budget Activity Justification This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$ in Thousands) FY 1999 FY 2000 Previous President's Budget (FY 2000 PBR) FY 1999 FY 2000 Previous President's Budget (FY 2000 PBR) 94,404 98,890 108,851 Appropriated Value -34,746 108,890 108,851 Adjustments to Appropriated Value -34,746 108,890 108,851 Adjustments to Appropriated Value -3,134 -590 -590 B. Small Business Innovative Research -590 -590 -590 C. Omnibus or Other Above Threshold Reprogram -6,568 -848 Exhibit R-2 (PE 030 Project 673030 Page 3 of 7 Pages Page 3 of 7 Pages EX 2001 EX 2001	9					
B. Budget Activity Justification This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$ in Thousands) EX 1999 EX 2000 EX 2001 Previous President's Budget (FY 2000 PBR) EX 1999 EX 2001 EX 2001 Appropriated Value -342 -1 -1 Adjustments to Appropriated Value -343 -1 -590 A. Congressional/General Reductions -3,134 -590 -590 Below Threshold Reprogram -588 -848 -848 A. Other Project 673030 Page 3 of 7 Pages EX 1090 EX 2001 Project 673030 Page 3 of 7 Pages EX 1090 EX 2001 EX 2001	9					
This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program. C. Program Change Summary (\$ in Thousands) FY 1999 FY 2000 FY 2001 Previous President's Budget (FY 2000 PBR) 94,404 98,890 108,851 Previous President's Budget (FY 2000 PBR) 94,746 108,890 108,851 Appropriated Value -34,746 108,890 108,851 Adjustments to Appropriated Value -34,746 108,890 108,851 b. Small Business Imovative Research -3,134 -590 -590 c. Omnibus or Other Above Threshold Reprogram -6,885 -848 -848 f. Other Coher -568 -848 -848 Project 673030 Project 673030 Project 673030 Exhibit R-2 (PE 030	9	B. Budget Activity Justification				
C. Program Change Summary (\$ in Thousands) EY 1999 FY 2000 FY 2001 Previous President's Budget (FY 2000 PBR) 94,404 98,890 108,851 Appropriated Value 94,746 108,890 108,851 Adjustments to Appropriated Value -34 -1 a. Congressional/General Reductions -342 -1 b. Small Business Innovative Research -53,134 -590 c. Omnibus or Other Above Threshold Reprogram 10,885 -848 e. Rescissions f. Other f. Other Project 673030 Page 3 of 7 Pages		This program is in Budget Activity 7 - Operational Systems Developme	nt because it is a post-Milestone III p	rogram.		
Previous President's Budget (FY 2000 PBR) FY 2000 FY 2001 Appropriated Value 94,404 98,890 108,851 Adjustments to Appropriated Value 94,746 108,890 108,851 Adjustments to Appropriated Value -342 -1 a. Congressional/General Reductions -3,134 -590 b. Small Business Innovative Research -590 -590 c. Omnibus or Other Above Threshold Reprogram -590 -590 d. Below Threshold Reprogram -548 -848 f. Other -568 -848 F. Other Project 673030 Exhibit R-2 (PE 030	9	C. Program Change Summary (\$ in Thousands)				
Previous President's Budget (FY 2000 PBR) 94,404 98,890 108,851 Appropriated Value 94,746 108,890 108,850 Adjustments to Appropriated Value -342 -1 a. Congressional/General Reductions -3,134 -590 b. Small Business Innovative Research -590 -590 c. Omnibus or Other Above Threshold Reprogram -10,885 -848 e. Rescissions f. Other f. Other Page 3 of 7 Pages Exhibit R-2 (PE 0305168)			FY 1999	FY 2000	FY 2001	Total Cost
Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other Page 3 of 7 Pages Exhibit R-2 (PE 0305168	9	Previous President's Budget (FY 2000 PBR)	94,404	068,86	108,851	TBD
Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other Fage 3 of 7 Pages Fage 3 of 7 Pages Fage 3 of 7 Pages -342 -1 -342 -1 -590 -590 -590 -568 -848 Exhibit R-2 (PE 0305168)	9	Appropriated Value	94,746	108,890		
nal/General Reductions -342 -1 -3.134 -3,134 -590 shold Reprogram -568 -848 Exhibit R-2 (PE 0305168	9	Adjustments to Appropriated Value	4	•		
ness Innovative Research -3,134 -590 -590 shold Reprogram -568 -848 Exhibit R-2 (PE 0305168		a. Congressional/General Reductions	-342			
-590 -Shold Reprogram -Shold Reprogram -568 -848 -848 -Shold Reprogram -568 -848 Exhibit R-2 (PE 0305168		b. Small Business Innovative Research	-3,134			
sshold Reprogram 10,885 -848 -568 -848 Page 3 of 7 Pages		c. Omnibus or Other Above Threshold Reprogram		-590		
-568 -848 Page 3 of 7 Pages Exhibit R-2 (PE 0305168		d. Below Threshold Reprogram	10,885			
Page 3 of 7 Pages Exhibit R-2 (PE 0305168)		e. Rescissions	-568	-848		
Page 3 of 7 Pages		f. Other				TBD
	₫.	Project 673030	Page 3 of 7 Pages		Exhibit R-2 (PE 0	305165F)

	RDT&E BUDGET ITEM JU	JUSTIF	CATION	SHEET	STIFICATION SHEET (R-2 Exhibit)	bit)	Δ	DATE Februa	February 2000
92 04 04	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305165F NAVS	AND TITLE F NAVSTA	матте NAVSTAR GPS (Space)	pace)		PROJECT 673030
Ð	اغ.	iousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	PE 0305164F, GPS User Equipment PE 0101221N, Fleet Ballistic Missile System PE 0301357F and 0305913F, Nuclear Detonation Detection System (NDS) PE 0305119F Space Boosters (Delta II) PE 0604480F, GPS Block IIF	Detection S	ystem (NDS)						
9	E. Acquisition Strategy GPS OCS upgrade was competitively awarded to a single contractor (Lockheed Martin) in July 1995. Block IIF satellite and IIF ground systems development contract was competitively awarded to a single contractor (Boeing) in April 1996. The Single Prime Initiative (SPI) consolidates these efforts into one contract that was awarded to Boeing (with Lockheed Martin as a subcontractor) on 1 Oct 99.	a single cont (Boeing) in a	ractor (Lockhe April 1996. Th 99.	ed Martin) in le Single Prim	July 1995. Blo e Initiative (SP	ock IIF satellit I) consolidates	e and IIF grous these efforts	nd systems devel into one contract	lopment contract that was awarded
9	F. Schedule Profile		-	FY 1999 2 3	4	1 2 EX.	EY 2000 2 3 4	1 2	FY 2001 2 3 4
555	Continue OCS Architectural Implementation Phase 3/4 delivery					*	×		
99999	IIA IMOSC system available IIA IMOSC development complete IIF IMOSC development begins IIF satellite final design verification GPS Modernization studies complete	5	*				× ×	×	
33333	Master Control Station interface to LLK Operational Support System dev GPS Overarching Integrated Product Team (OIPT) GPS Operational Requirements Document (ORD) Validation GPS Program Review GPS Modernization Space/Control development begins GPS Modernization Long Lead Production begins	T) Yalidation begins s		*	*	×	* *	×	
<u>.</u>	Project 673030		Pag	Page 5 of 7 Pages	8			Exhibit R-2	Exhibit R-2 (PE 0305165F)

	RDT&E PROGRAM ELEMENT	/PROJECT	COST BREAKDOWN (R-3)	VN (R-3)		DATE Feb i	February 2000	
01 01	вирсет астилту 07 - Operational System Development	ıt	PE NUMBER AND TITLE 0305165F NAVST	NAVSTAR GPS (Space)	ace)		PR 67	PROJECT 673030
<u>(2)</u>	A. Project Cost Breakdown (\$ in Thousands)	(5)	:	0001 232		0000 785		100 XT
.5	System Engineering including JSC and GEMS	5 0		771	~.	LY 2000 1,103		1.100 1.100
3	CS Training Simulator Development			2,545		1,685		1,731
3	OCS Development/Sustainment			11,878		12,917		3,707
3	OCS Transition to Operations			3,004		0		0
9	Space long-range planning			346		300		0
9	IIF direct inject			11,064		2,250		0
9	IIA/IIF/IIR IMOSC development			666		1,099		2,820
€	IIF satellite development			23,000		3,444		0
<u> </u>	IIF clock technology development			3,390		5,390		4,650
3	IIF satellite associated development			2.838		2,700		4.454
3	IIF Operational Control System development			29,008		38,823		42,972
9	IIF OCS associated development			2,791		4,083		1,615
9	GPS L/EO consolidation			0		0		4,900
9	GPS Modernization Space/Control development	ent		3,200		26,388		168,400
9	GPS Modernization Technical Support			6,450		5,052		10,750
99	GPS program support Total			303 101,587		335 107,451		751 250,197
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	<u> Information (\$ in Thousan</u>	(<u>sp</u>					
9	ning Organizations: tor or nent ing	rd or Perfor			Budget		Budget to	Total
	Activity Vehicle	Date EAC	EAC to FY 1999	FY 1999 F.	EY 2000	FY 2001 9	Complete	Program
u.	Project 673030	Pag	Page 6 of 7 Pages			Exhibit F	Exhibit R-3 (PE 0305165F)	3165F)
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	GRAM ELE	EMENT/F	ROJECT	COST BF	(EAKDO)	WN (R-3)		DATE F (February 2000	00
BUDGET ACTIVITY 107 - Operational System Development	n Developme	ınt		PE NUMBE 030516	PE NUMBER AND TITLE 0305165F NAVSTAR GPS (Space)	'AR GPS (Space)		д. Ф	PROJECT 673030
(U) Performing Organizations Continued:	s Continued:					:	:			
Product Development Organizations	nizations	•			;	:	•	•	•	
Lockheed-Martin	CPAF/FFP	Jul 95	124,401	124,401	60,160	17,141	0	0	0	77,301
Applied Research Labs	MIPR	Mar 97	2,766	2,766	2,366	0	683	300	0	3,349
Boeing	FPAF/CPAF	Apr 96	Continuing	Continuing	128,104	72,650	36,664	92,435	Continuing	TBD
Boeing (SPI)	CPAF/CPFF	Oct 00	Continuing	Continuing	0	0	57,924	109,295	Continuing	TBD
TBD IIR Modernization	TBD	TBD	TBD	TBD	0	0	0	30,916	0	30,916
NRL	MIPR	Various	Continuing	Continuing	1,250	3,390	5,390	4,650	15,625	30,305
GPS Modernization Tech Spt Various	pt Various	Various	Continuing	Continuing	2,208	6,450	5,052	10,750	Continuing	TBD
Miscellaneous	Various	Varions			1,131	536	0	0	Continuing	TBD
Support and Management Organizations	Arganizations									
System Engineering	Various	Various	N/A	N/A	19,410	771	1,103	1,100	Continuing	TBD
Program Support	Varions	Various	N/A	N/A	6,890	303	335	751	Continuing	TBD
Miscellaneous	Various	Various	N/A	N/A	805	346	300	0	0	1,451
Test and Evaluation Organizations	zations									
					Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals					to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Product Development	ient				195,219	100,167	105,713	248,346	TBD	TBD
Subtotal Support and Management	gement				27,105	1,420	1,738	1,851	TBD	TBD
Subtotal Test and Evaluation	u									
Total Project					222,324	101,587	107,451	250,197	TBD	TBD
Project 673030			д	Page 7 of 7 Pages	es			Exhir	Exhibit R-3 (PE 0305165F)	05165F)

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		RDT&E BUDGET ITEM JI	JSTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE		February 2000
BUDC 07 -	BUDGET ACTIVITY 07 - Operatic	onal System Development			PE NUMBER AN 0305182F	PE NUMBER AND TITLE 0305182F Space	мотпле Spacelift Range System	le Syster	ا ء ا		PROJECT 674137
		COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674137		Range Standardization and Automation (RSA)	27,594	50,989	53,654	52,306	55,511	57,147	49,984	Continuing	TBD
	Quantil	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
Ð	A. Mission The Easter They prov spacelift of Range asse	A. Mission Description The Eastern Range (ER) headquartered at Patrick AFB, FL and the Western Range (WR) headquartered at Vandenberg AFB, CA are the nation's Spacelift Ranges. They provide tracking, telemetry, communications, flight analysis, and other capabilities necessary to safely conduct Department of Defense, civil, and commercial spacelift operations; intercontinental and sea-launched ballistic missile operational test and evaluations (T&E); and aeronautical and guided weapons T&E. Many Range assets are outdated, unreliable, inefficient, and costly to operate and maintain.	B, FL and th ight analysis d ballistic m costly to op	B, FL and the Western Range (ight analysis, and other capabil ballistic missile operational tecostly to operate and maintain.	Sange (WR) capabilities i ional test an aintain.	headquarter necessary to d evaluation	ed at Vander safely condi s (T&E); an	nberg AFB, uct Departm d aeronautic	CA are the n ent of Defen al and guide	nation's Spac ise, civil, and d weapons T	elift Ranges. I commercial &E. Many
	The Air For efforts. Mimprove of	The Air Force is addressing range shortcomings through a phased modernization program. Funding identified in this document is for the modernization development efforts. Modernization is needed to meet documented requirements for a Spacelift Range System (SLRS) to support the evolving launch mission. The objectives are to improve operational flexibility, reliability, and supportability while reducing operations and maintenance costs.	igh a phased I requiremen rtability whi	modernizat its for a Spa le reducing o	tion program celift Range operations a	. Funding ic System (SL) nd maintena	dentified in t RS) to suppo nce costs.	his documer ort the evolv	nt is for the r ing launch n	nodernizatio nission. The	n development objectives are to
	Two of the upgrades t instrument	Two of the three modernization phases will continue in FY01. First, the Range Standardization and Automation (RSA) Phase IIA program will continue to develoy upgrades to the control and display, and communication segments. Second, the SLRS Contract (SLRSC) will continue to develop an integrated suite of automated instrumentation, to include items previously planned for a follow-on RSA contract. Following are details of the FY99-01 RDT&E program:	in FY01. Fi on segments for a follow-	rst, the Rang . Second, ti	in FY01. First, the Range Standardization and Automation (RSA) Phase IIA program ion segments. Second, the SLRS Contract (SLRSC) will continue to develop an integra for a follow-on RSA contract. Following are details of the FY99-01 RDT&E program:	zation and A ntract (SLRS wing are det	utomation (SC) will con ails of the F	RSA) Phase tinue to dev Y99-01 RD	IIA progran elop an integ T&E prograr	n will conting grated suite o n:	in FY01. First, the Range Standardization and Automation (RSA) Phase IIA program will continue to develop ion segments. Second, the SLRS Contract (SLRSC) will continue to develop an integrated suite of automated for a follow-on RSA contract. Following are details of the FY99-01 RDT&E program:
<u> 9</u> 9	FY 1999 (3 \$8,004	EY 1999 (\$ in Thousands) \$8,004 Continued RSA Phase I: Completed integration of Centralized Telemetry Processing Subsystem (CTPS). Completed Cape Fiber Optic Network (CFON) installation. Continued RSA Phase I test and evaluation.	pleted integr d RSA Phas	ation of Cer	ntralized Tel evaluation.	emetry Proc	essing Subsy	ystem (CTP	S). Complet	ed Cape Fibe	er Optic Network
9	\$17,053	Continued RSA Phase IIA: Continued integration and testing of planning and scheduling and weather product items for operational turnover. Continued development of communications network including network core. Continued development of interim flight safety product for ER.	ontinued inte omunication	gration and s network ir	testing of pl	anning and s	scheduling a	nd weather propert of	product items of interim fli	s for operatic	onal turnover.
55	\$2,537 \$27,594	Began development of voice, video and data network modernization. Began development of Differential GFS (DGFS) metric tracking system. Provided program support for Systems Program Office. Total	ydeo and da Systems Pro	video and data network m Systems Program Office.	modemizano	n. began de	velopment o	or Different	al Gr3 (DG)	гэ) тешс п	acking system.
<u> </u>	Project 67413 <u>7</u>	137		Page	Page 1 of 7 Pages	50			Ш	xhibit R-2 (Exhibit R-2 (PE 0305182F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000
BUD(07 -	вирбет Астічіту 07 - Operational Sys	вирсет аститу 07 - Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System	PROJECT 674137
(3	A. Mission Description Continued	on Continued		
(3	FY 2000 (\$ in Thousands)	(spu		
9	\$1,768	Complete RSA Phase I: Complete RSA Phase test an	e RSA Phase test and evaluation and turnover.	
()	.835,051	Continue RSA Phase IIA: Continue integration and testing of planning and scheduling and weath Continue development and begin testing of DGPS for metric tracking. Continue development an modernization. Continue development and begin testing of communication network including no product for the ER. Begin development of final flight operations and analysis product for SLRS.	Continue RSA Phase IIA: Continue integration and testing of planning and scheduling and weather product items for operational turnover. Continue development and begin testing of DGPS for metric tracking. Continue development and begin testing of voice, video and data network modernization. Continue development and begin testing of communication network including network core. Complete interim flight safety product for the ER. Begin development of final flight operations and analysis product for SLRS.	ems for operational turnover. ng of voice, video and data network Complete interim flight safety
9	\$3,300	Begin SLRSC. Assess AFSPC's down-range instrume these requirements. Begin related design efforts.	Begin SLRSC. Assess AFSPC's down-range instrumentation requirements and commercial off-the-shelf (COTS) products available to satisfy these requirements. Begin related design efforts.	TS) products available to satisfy
9	\$2,370	Provide program support for Systems Program Office.		
99	\$8,500 \$50,989	Fund California spaceport authority study and design Total	Fund California spaceport authority study and design of universal spaceport at Vandenberg AFB per congressional direction. Total	ional direction.
9	FY 2001 (\$ in Thousands)	(spu		
()	\$31,392	Continue RSA Phase IIA: Continue development of t Continue development and testing of communications data network modernization. Complete testing of plan digital telemetry (previously referred to as CTPS), and	Continue RSA Phase IIA: Continue development of the final flight operations and analysis system. Complete DGPS for metric tracking. Continue development and testing of communications network including network core. Continue development and testing of voice, video and data network modernization. Complete testing of planning and scheduling and weather product items. Begin development of range operations, digital telemetry (previously referred to as CTPS), and related efforts under the control and display segment.	e DGPS for metric tracking. nt and testing of voice, video and development of range operations,
5	\$19,562	Continue SLRSC: Continue assessment of existing C design efforts. Apply results of COTS assessments/de instrumentation previously planned for RSA program.	Continue SLRSC: Continue assessment of existing COTS solutions for applicability to down-range instrumentation requirements and related design efforts. Apply results of COTS assessments/design efforts to development of automated instrumentation for the SLRS, to include instrumentation previously planned for RSA program.	ntation requirements and related on for the SLRS, to include
99	\$2,700 \$53,654	Provide program support for Systems Program Office. Total		
9	B. Budget Activity Justification These efforts are categorized as B Funding for RSA and SLRSC des	ustification gorized as Budget Activity 7, Operational Systems Dev SLRSC design and integration for both ER and WR is	B. Budget Activity Justification These efforts are categorized as Budget Activity 7, Operational Systems Development, because they upgrade existing operational capabilities with new systems. Funding for RSA and SLRSC design and integration for both ER and WR is consolidated in this program element to support the integrated SLRS approach.	pabilities with new systems. grated SLRS approach.
G	Project 674137	Page	Page 2 of 7 Pages	Exhibit R-2 (PE 0305182F)

	RDT&E BUDGET ITEM JUSTIF	STIFICATION SHEET (R-2 Exhibit)	2 Exhib	€	۵	DATE February 2000	2000
800 07	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305182F Space	TITLE pacelift F	ND TITLE Spacelift Range System	stem		PROJECT 674137
<u>(</u>	C. Program Change Summary (\$ in Thousands)	∀ ∃	FV 1999	FV 2000		FV 2001	Total Cost
9	Previous President's Budget (FY 2000 PBR)		24.457	43.186	4	49,130	TBD
3	Appropriated Value	2	24,578	51,686			
9	Adjustments to Appropriated Value						
	a. Congressional/General Reductions		-121	-14			
	b. Small Business Innovative Research		-801				
	c. Omnibus or Other Above Threshold Reprogram			-280			
	d. Below Threshold Reprogram		4,092				
	e. Rescissions		-154	-403			i e
58	Adjustments to Budget Years Since FY 2000 PBR		7 504	000 03	7 2	4,524	IBD
9	Current Budget Submivr I 2001 rbk	7	27,394	50,989	ñ	53,654	IBD
9	Significant Program Changes: FY 1999: \$3,999 added to fund RSA Phase IIA execution shortfall; \$388 added to fund AFSPC Range Safety Study; and, \$295 deducted for higher AF priorities. FY 2000: Congress appropriated additional \$8,500 for California universal spaceport study/design for Vandenberg AFB; RSA Phase I extended into FY 2000 to complete test and transition activities, using funding available from revised estimate of other program costs. FY 2001: \$5,000 transferred from OPAF to provide necessary RDT&E/OPAF mix. \$476 deducted for higher AF priorities.	rtfall; \$388 added to fund AFSPC rnia universal spaceport study/des from revised estimate of other pro/ RDT&E/OPAF mix. \$476 dedu	Range Safe sign for Van ogram costs.	ty Study; and lenberg AFB. ner AF priorit	, \$295 deduc ; RSA Phase ies.	ted for higher AF pri I extended into FY 2	orities. .000 to
9	D. Other Program Funding Summary (\$ in Tho FY 1999	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
9	OPAF, BA 03, P-66, Spacelift 91,340 82,682 Range System Space*	Estimate Estimate Es 92,714 145,209 13	Estimate 135,403	Estimate 146,268	Estimate 164,479	Complete Continuing	TBD
	* FY 2001 through FY 2004 amounts reflect reductions due to transfer of funding from OPAF to RD1 α E to provide necessary RD1 α E/OPAF mix.	transfer of funding from OPAF to	o KUT&E to	provide nece	ssary KDT&	E/OPAF mix.	
ව	E. Acquisition Strategy The RSA Phase I contract was competitively awarded in FY 1993 to connect major ER stations at Antigua and Ascension Islands and the ER operations control center via a satellite communications network; to standardize and centralize telemetry processing for the ER and WR; and to modernize and automate the Cape Canaveral communications network. It ends in FY 2000.	n FY 1993 to connect major ER stations at Antigua and Ascension Islands and the ER operations control cen and centralize telemetry processing for the ER and WR; and to modernize and automate the Cape Canaveral	at Antigua aı he ER and W	nd Ascension 'R; and to mo	Islands and t	the ER operations con automate the Cape C	ntrol center anaveral
0.	Project 674137	Page 3 of 7 Pages				Exhihit R-2 (PE 0305182E)	0305182E)
		1 age J OI / I ages				באווטוו ה-2 (ר ב	USUS 102F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE	February 2000
BUE 07	вирсет Астіліту 07 - Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System	stem	PROJECT 674137
<u> </u>	E. Acquisition Strategy Continued The RSA Phase IIA contract was competitively awarded in FY 1996 to provide an SLRS architecture and standardize and automate the ranges. It modernizes range safety, flight analysis, communications, range operations, planning and scheduling, and meteorological systems. It will end in FY 2006.	te an SLRS architecture and standardize and uling, and meteorological systems. It will er	automate the ranges nd in FY 2006.	. It modernizes range
	AFMC is competitively awarding the SLRSC in FY 2000 to consolidate remaining modernization efforts with systems integration and sustainment efforts under one contractor. The SLRSC will develop and procure automated down-range instrumentation originally planned for a follow-on RSA phase. The SLRSC will run through FY 2010.	ining modernization efforts with systems int rumentation originally planned for a follow	tegration and sustain on RSA phase. The	ment efforts under one SLRSC will run through
3	E. Schedule Profile	FY 1999 FY 2000	000	FY 2001
1		2 3 4 1 2	3 4 1	2 3 4
<u> </u>	RSA Phase I - Centralized Telemetry Processing Subsystem Installation/Checkout - Cape Fiber Optic Network Installation	*		
99	- System DT&E - Operational T&E	*		
3	- System Turnover		×	
<u> </u>	RSA Phase IIA - Early Scheduling Tool Set for Automated Ranges Test Phase	*		
<u>(E</u>	- Planning and Scheduling ER Combined DT&E & IOT&E		×	
<u> </u>	 Planning and Scheduling WR Combined DT&E & IOT&E Weather ER DT&E/OT&E 		×	×
<u> </u>	- Weather WR DT&E/OT&E	1		×
39	 Network 1 iming EK & WK Qualification 1 esting Complete - Network Core WR Qualification Testing complete 	*	×	
93	- Network Manager WR Qualification Testing Complete		×	
36	- Differential GPS for Metric Tracking Complete SLRS Contract			×
9	- Acquisition Strategy Panel	*		
33	- Contract Award California Universal Spaceport Study	×		
-	Project 674137	Page 4 of 7 Pages	Exhi	Exhibit R-2 (PE 0305182F)

RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
виреет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305182F Spacelift Range System	PROJECT 674137
(U) E. Schedule Profile Continued	FY 1999 FY 2000	FY 2001
(U) - Contract Award * = completed event; X = planned event	1	4 1 2 3 4
		·
Project 674137	Page 5 of 7 Pages	Exhibit R-2 (PE 0305182F)
	0	

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/P	I/PROJECT C	OST BI	COST BREAKDOWN (R-3)	NN (R-3)			February 2000	00
BUD 07	вирсет астилту 07 - Operational System Development)evelopme	nt		PE NUMBER AN 0305182F		ы тіт∟Е Spacelift Range System	System		9	РРОЈЕСТ 674137
(5)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	ds)				1.42.1	000)0C VII	9	100 XT
1	•						FX 1999	555	FY 2000	21	FY 2001
9	RSA Phase I Contract) ,	8,004	1,768	∞	0
9	RSA Phase IIA Contract					٠	17,	17,053	35,051	1	31,392
9	SLRS Contract							0	3,300	0	19,562
9							2,	2,537	2,370	0	2,700
99	California Universal Spaceport Study Total	rt Study					27;	27,594	8,500 50,989	0 0	53,654
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	cy and Plannir	ig Informatic	on (\$ in Thousan	(Sp						,
3	Performing Organizations:										
` ,		Contract									
	Government	Method/Type	Award or	Performing	Project						
	<u>Performing</u>	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	aniz	ations									
	V Phase I)	C/CPAF	Jun 93	93,859	6,087	86,315	8,004	1,768	0	0	96,087
	Lockheed Martin	C/CPAF	Nov 95	153,222	153,848	60,292	17,053	35,051	31,392	Continuing	TBD
	¥										
	TBD (SLRSC)	TBD	Mar 00	TBD	TBD	0	0	3,300	19,562	Continuing	TBD
	agement Org	anizations		****			t	i c			ļ
	Mission Support	various	various	N/A	A/N	/55,11	7,537	0/5,7	7,/00	Continuing	180
	izat	ions	200	V/N	Q.	>	Þ	0000	>	>	000,0
<u>9</u>	Government Furnished Prop	oerty: Contract									
	Item Description	Method/1ype or Funding Vehicle	<u>Award or</u> Obligation <u>Date</u>	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Project 674137			Pa	Page 6 of 7 Pages	Sec			Fxhib	Exhibit R-3 (PF 0305182F))5182E)
				7	2000	200					721051

RDT&E PROGRAM ELEMENT	ENT/PROJECT	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY OP - Operational System Development		PE NUMBER AND TITLE 0305182F Spacelift Range System	ift Range	System		Э	РРОЈЕСТ 674137
(U) Government Furnished Property Continued: Contract Method/Type Awa Item or Funding Obli	d or ration	Total Prior	Budget FV 1000	Budget	Budget FV 2001	Budget to	<u>Total</u> Program
Product Development Property GFP determination is ongoing as work progresses on each RSA Phase IIA delivery increment. The current 1000+ item GFP list is too large to be included with this document. It is available upon request.	on each RSA Phase II	A delivery increment. The curr	rent 1000+ iter	n GFP list is 1	too large to b	e included with	this
Support and Management Property N/A Test and Evaluation Property							
N/A Subtotals Subtotal Product Development Subtotal Support and Management		Total Prior to FY 1999 146,607 11,357	Budget FY 1999 25,057 2,537	Budget EY 2000 40,119 10,870	Budget EY 2001 50,954 2,700	Budget to Complete TBD TBD	Total Program TBD TBD
Subtotal Test and Evaluation Total Project		157,964	27,594	50,989	53,654	TBD	TBD
Project 674137		Page 7 of 7 Pages			Exhit	Exhibit R-3 (PE 0305182F)	05182F)

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PE TITLE: Dragon U-2 (JMIP)

		RDT&E BUDGET ITEM JU	STIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUD(07	вирбет АстіvітY 07 - Operatio	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER AND TITLE 0305202F Drago	AND TITLE F Drago	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	MIP)			
		COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	To	Total Program Element (PE) Cost	0	0	27,546	24,118	8,224	1,936	1,931	Continuing	TBD
674818		Advanced Technology	0	0	17,616	16,443	6,285	0	0	40,694	TBD
674820		Manned Reconnaissance Systems U-2	0	0	06'6	7,675	1,939	1,936	1,931	Continuing	TBD
	ð	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
ව	A. Mis Manne relates	A. Mission Description Manned Reconnaissance system U-2 funding for FY99 - FY00 in PE 0305207F. Advanced Technology funding for FY00 included in PE 0305206F (Only portion relates to this program)) - FY00 in	PE 0305207	F. Advance	d Technolog	y funding fc	r FY00 incl	uded in PE (0305206F (C	only portion
	The RI on sens	The RDT&E portion of this program element funds efforts required to enhance and sustain the U-2 Dragon reconnaissance aircraft. The RDT&E efforts in this PE focus on sensor and safety of flight projects. In addition to the RDT&E funding there are procurement funds associated with these developments.	forts require he RDT&E	ed to enhance funding the	fforts required to enhance and sustain the U-2 Dragon reconnaissance aircraft. The RL the RDT&E funding there are procurement funds associated with these developments.	the U-2 Dr ement funds	agon reconn s associated	aissance air with these d	craft. The R evelopment	tDT&E effor s.	rts in this PE focus
9	B. Buc This pr develo	B. Budget Activity Justification This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 Aircraft.	y 7 because	it provides	for developr	nent of tech	nologies and	l capabilities	in support	of operation	al system
3	C. Pro	C. Program Change Summary (S in Thousands)				EV 1000		0000	EV 200	-	C Total
555	Previo Approl Adjust a. Con b. Sma c. Omr d. Belc e. Resc	Previous President's Budget (FY 2000 PBR) Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions				0		0	0	T 0	Total Cost

Page 1 of 8 Pages

Exhibit R-2 (PE 0305202F)

Pier kulvaera Andro Title 10305202F Dragon U-2 (JMIP)		RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibi	it)	DATE February 2000	y 2000
C. Program Change Summary (\$ in Thousands) Continued FY 1999 FY 2000 FY 2001 f. Other 0 27,546 27,546 Adjustments to Budget Years Since FY 2009 PBR 27,546 27,546 Current Budget Submir/FY 2001 PBR 27,546 27,546 Significant Program Changess 5 Significant Program Changess 27,546 Significant Program Changess Funding for PE 35202 project 674818 was reprogrammed from a portion of PE 0305206F (FY00 PBR - \$17.616M). Pruding for PE 35202 project 674818 was reprogramming from RDT&E to procurement (\$4.595 M). FY01 - U-2 Electronic Warfare System (EWS) reprogramming from RDT&E to procurement (\$4.595 M). Page 2 of 8 Pages Exhibit R-2 (PE 036	800 07	вет астіvіту · Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-:	2 (JMIP)		
f. Other Adjustments to Budget Years Since FY 2000 PBR O 27/346 Significant Program Changes Significant Program Changes Funding for PE 35202 project 674818 was reprogrammed from PE 305207F (FY00PBR - \$14.525M). Funding for PE 55202 project 674818 was reprogrammed from a portion of PE 0305206F (FY00 PBR - \$17.616M). FY01 - U.2 Electronic Warfare System (EWS) reprogramming from RDT&E to procurement (\$4.595 M).	<u>(3</u>	C. Program Change Summary (\$ in Thousands) Continued	FV 1999	FY 2000	FY 2001	Total Cost
Significant Pogram Changes: Funding for PE 55202 project 674818 was reprogrammed from PE 305207F (FY00PBR - \$14.525M). Funding for PE 55202 project 674818 was reprogrammed from a portion of PE 0305206F (FY00 PBR - \$17.616M). FY01 - U-2 Electronic Warfare System (EWS) reprogramming from RDT&E to procurement (\$4.595 M). Page 2 of 8 Pages	99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR		0	27,546 27,546	TBD
7.616M).	9	Significant Program Changes: Funding for PE 35202 project 674820 was reprogrammed from PE 305207.	F (FY00PBR - \$14.525M).			
		Funding for PE 35202 project 674818 was reprogrammed from a portion o	PE 0305206F (FY00 PBR - \$17.	7.616M).		
		FY01 - U-2 Electronic Warfare System (EWS) reprogramming from RDT.	&E to procurement (\$4.595 M).			
			,		: : :	
		Pa	ge 2 of 8 Pages		Exhibit R-2 (PE 0305202F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JUSTIFIC,	ATION (SHEET ((R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDGE 07 - (вирсет астилту 07 - Operational System Development			PE NUMBEI 0305202	PE NUMBER AND TITLE 0305202F Drago	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	MIP)			PROJECT 674818
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674818	8 Advanced Technology	0	0	17,616	16,443	6,285	0	0	40,694	TBD
Note:	Note: FY00 funding included in PE 0305206F (Only U-2 Defensive Systems portion relates to this program	2 Defensive Sy	stems portic	on relates to	this program	(1				
6	A. Mission Description This project supports the U-2 Advanced Defensive System (ADS) development. ADS is designed to provide situational awareness and self-protection jamming to degrade and or detect the ability of surface-to-air and air-to-air weapon systems to engage the U-2 aircraft. A full ADS capability will be achieved through spiral upgrades. Spiral upgrades will address modern RF signals in the baseline system. Follow-on upgrades will include infrared warning and defense. Onboard and offboard data fusion will be provided as a growth provision to enhance situational awareness.	e System (ADS and air-to-air w signals in the	eapon syster baseline syst baseline syst	ent. ADS is ans to engage tem. Follow-reness.	designed to the the three that the U-2 airest on upgrades	provide situz craft. A full , ; will include	ttional aware ADS capabil infrared wa	eness and sellity will be a	ff-protection chieved thro efense. Onbo	jamming to ugh spiral oard and offboard
999	FY 1999 (\$ in Thousands) \$0 No Activity \$0 Total									
2 <u>3</u> 2	FY 2000 (\$ in Thousands) \$0 Funding included in PE 0305206F \$0 Total	35206F								
22222	FY 2001 (\$\frac{\$x}{200}\$ in Thousands) \$9,616 Defensive System Hardware D \$5,500 Software Development \$1,000 SPO Support \$1,500 System Test \$17,616 Total	e Development								
9	B. Project Change Summary									
ď	Project 674818		Page	Page 3 of 8 Pages	ပ္သ			Щ	hibit R-2A (Exhibit R-2A (PE 0305202F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	A JUSTIFICATION	N SHEET (I	3-2A Exh	libit)	Ω	DATE February 2000	y 2000
97 07	ВИDGET АСТІVІТУ 07 - Operational System Development		PE NUMBER AND TITLE 0305202F Drago	AND TITLE - Dragon	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)			PROJECT 674818
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	(housands) EY 2000 EY 2001 Extimate Estimate	FY 2002 Estimate	FX 2003 Fertimate	FY 2004 Ferimate	EY 2005 Estimate	Cost to Complete	Total Cost
99	ADS RDT&E PE 35206F ADS Production (APAF 305202)		1,522	3,895	4,042	4,121	Continuing Continuing	TBD
Ð	D. Acquisition Strategy Funds are for the engineering, manufacturing and development for the U-2 Advanced Defensive System (ADS). A sole source contract will be awarded to a prime contractor which will be responsible for delivering a total system. The prime contractor may subcontract for subsystems of the ADS. Efforts include the development of ADS, integration on the U-2 aircraft, testing and production planning.	nd development for the U-2 ing a total system. The prii d production planning.	. Advanced Defer me contractor ma	ısive System (y subcontract	ADS). A sole for subsystems	source contractions of the ADS.	x will be awarded Efforts include th	to a prime e development of
<u>e</u>	E. Schedule Profile	1	FY 1999 2 3	4	EY 2000	2000 3 4	1 2 EX	FY 2001 2 3 4
999	U-2 ADS Milestone 2 ADS Phase 2 Contract Award Begin ADS Flight Testing Note: * denotes completed event, X denotes planned event.	anned event.			××			×
	Project 674818		Page 4 of 8 Pages				Exhibit R-2A (PE 0305202F)	PE 0305202F)

	RDT&E PROGRAM ELEMENT		/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	e
902 07	BUDGET ACTIVITY 07 - Operational System Development	opment		PE NUMBER AI 0305202F		Dragon U-2 (JMIP)	P)			PROJECT 674818
(0)	A. Project Cost Breakdown (\$ in Thousands)	'housands)				EV 1000	000	EV 2000	9	EV 2001
22222	Hardware and Software Development Systems Engineering Contractor Engineering Support Government Engineering Support System Test Total	ıţ						77	3	9,616 3,000 2,500 1,000 1,500
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	Planning Informatio	on (S in Thousanc	(3)						
9	Performing Organizations: Contractor or									•
	Government Method/Ty Performing or Funding Activity Vehicle	Method/Type Award or or Funding Obligation Vehicle Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	$\frac{\text{Budget}}{\text{FY }2000}$	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations Adv Def Sys Cont CPIF	2nd Qtr 00	TBD	TBD				15,116	Continuing	TBD
	Support and Management Organizations ASC/RA	suo						1,000	Continuing	TBD
	Test and Evaluation Organizations Eglin AFB, Edwards AFB				f	Ē	É	1,500	Continuing	TBD
	Subtotals				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Product Development Subtotal Support and Management							15,116 1,000	TBD TBD	TBD
	Subtotal Test and Evaluation							1,500	TBD	TBD
	Total Project							17,616	TBD	TBD
	Project 674818		Pag	Page 5 of 8 Pages	es			Exhib	Exhibit R-3 (PE 0305202F))5202F)

	RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC!	ATION S	HEET ((R-2A E	xhibit)		DATE	February 2000	ry 2000
902 -	вирбет АстіvітY 07 - Operational Sys t	обет астіvіту - Operational System Development			PE NUMBEI 0305202	PE NUMBER AND TITLE 0305202F Drago	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	MIP)			PROJECT 674820
	COST (\$ in	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674820	20 Manned Reconnaissance Systems U-2	ance Systems U-2	0	0	06'6	7,675	1,939	1,936	1,931	Continuing	TBD
Note	:: FY99 - FY00 funding i	Note: FY99 - FY00 funding included in PE 0305207F.									
9	A. Mission Description	A. Mission Description This development project compare high manaffirmens	t of statement	h. 11 2 Adres	demonstrated	**************************************	,	30 A 0 A)	40000	24.2 4 0 4 10 0	oments to the II 2 Adrianced Combinetic Amendum Dedon Content (ACADE 2) diamond to the ACADE 2
	Program (AIP). AIP in	Program (AIP). AIP improves area search, precision geolocation, and image quality characteristics sufficiently to directly support the targeting of precision guided	geolocation,	and image o	anceu Synu quality chara	acteristics su	e Kadar Sys ifficiently to	directly sup	S-2) unrougn port the targ	tine ASAKS eting of prec	-2 Improvement ision guided
	munitions (FGMs). Continuation of Asynch	munitions (PUMS). Complex imagery will be produced by the ALP system and support significant exploitation products for the imagery analysts. AlP champions the introduction of Asynchronous Transfer Mode (ATM) datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards.	ed by the Al datalink for	IP system an mats to the I	d support si SR commu	gnificant ex rity and sup _l	ploitation pri ports Nation:	oducts for tt al Imagery 1	ne imagery an Transmission	nalysts. AIF 1 Format (NI	ed by the ALF system and support significant exploitation products for the imagery analysts. AIP champions the datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards.
	Several Line Replaceal supportability life. Dev	Several Line Replaceable Units (LRU) including the Process Control Unit (PCU), Receiver - Exciter (RE), and transmitter are approaching the end of their supportability life. Developing new LRUs with next generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provide	Process Con generation to	trol Unit (PC	CU), Receivill make AS	er - Exciter	(RE), and tra	insmitter are	approaching seted service	g the end of a life of the U	heir -2 and provide
	capability enhancemen Aerial Vehicles (HAE) to JP-8 are also contain	capability enhancements necessary to support PGMs. Aerial Vehicles (HAE UAV) should migration of this to JP-8 are also contained in this program element.	Improvemes improveme	nts to the Annut become a	SARS-2 are requiremen	directly trait. Funding	nsferable to (for evaluatic	Global Hawl on and risk r	k High Altit eduction of I	ude Enduran U-2 fuel con	Improvements to the ASARS-2 are directly transferable to Global Hawk High Altitude Endurance Unmanned improvement become a requirement. Funding for evaluation and risk reduction of U-2 fuel conversion from JPTS
999	FY 1999 (\$ in Thousands) \$0 Fun \$0 Tot	nds) Funding included in PE 0305207F Total	.07F								
999	FY 2000 (\$ in Thousands) \$0 \$0 Tot	<u>nds)</u> Funding included in PE 0305207F Total	.07F								
9	FY 2001 (\$ in Thousands)	(spi									
9 9	\$289 \$1.141	Continued Common Exploitation Tool Development (AIP) Fuel Conversion	ion Tool Dev	elopment (ℓ	VIP)						
<u> </u>		SPO Support (AIP and Fuel Conversion)	onversion)	(ATD)							
3		Begin Radar Antenna Development (AIP)	ment (AIP)	(
5	\$9,930	Total									
۵.	Project 674820			Page	Page 6 of 8 Pages	ι _ν			ĒŽ	hibit R-2A (Exhibit R-2A (PE 0305202F)
					1434						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	T ITEM	JUSTIFI	CATION	SHEET (F	3-2A Exh	ibit)	O.	DATE Febru	February 2000
BUDG 07 -	вирдет астіліту 07 - Operational System Development	opment			PE NUMBER AND TITLE 0305202F Drago	AND TITLE Dragon	⊌D TITLE Dragon U-2 (JMIP)		:	PROJECT 674820
(0)	B. Project Change Summary									
(5)	C. Other Program Funding Summary (S in Thousands) FY 1999 FY 2000 Actual Ferinate	nary (S in T) FY 1999 Actual	housands) FY 2000 Fetimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	EY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99	• • •	47,795 39,364	9,388 15,312	0	0	0	0	0	Continuing Continuing	TBD TBD
<u>(</u>	0305207F - Air Froduction APAF, Manned Recce, 0305202F - AIP Production * First Upgrade Radar Transmitter Deliveries in 3QFY	0 eliveries in	0 3QFY03	12,777	18,659	15,380	990'9	4,016	Continuing	TBD
()	D. Acquisition Strategy For airborne collection capability upgrades, modify exiexisting USAF contracts. For ASARS-2, develop and development activity.	grades, moc 8S-2, develo	lify existing pl op and test nev	atform and ass v technology li	ociated ground ine replaceable	l control equip. units (LRU's).	ment via Engii . There is asso	neering Chang ciated procure	pability upgrades, modify existing platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task For ASARS-2, develop and test new technology line replaceable units (LRU's). There is associated procurement funding tied to this	isting platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task orders to test new technology line replaceable units (LRU's). There is associated procurement funding tied to this
<u> </u>	E. Schedule Profile			1	FY 1999 2 3	4	FY 2000	2000 3 4	-	FY 2001 2 3 4
2333333	ASARS-2 Improvement Program -Begin Radar Transmitter Upgrade -Deliver Block 10 Software Fuel Conversion -Cold Flow Simulation (Cont) -High Altitude Cold Temp Model (Cont) -Material Compatability (Cont) -Thermal Stability (Cont) -Engine Testing Note: * denotes completed event, X denotes planned event.	ont)	inned event.						× ××××	×
Δ.	Project 674820			Pag	Page 7 of 8 Pages				Exhibit R-2/	Exhibit R-2A (PE 0305202F)

	RDT&E PROGRAM ELEMENT	SAM ELE		PROJECT COST BREAKDOWN (R-3)	OST BF	₹EAKDO\	WN (R-3)		DATE F e	February 2000	8
908 07	виреет Астииту 07 - Operational System Development	evelopme	nt		PE NUMBER AN 0305202F		4D TITLE Dragon U-2 (JMIP)	P)		9	РРОЈЕСТ 674820
9	A. Project Cost Breakdown (\$ in Thousands)	in Thousand	<u>[8]</u>				1 22	1000) C / X.1		1000 1311
33333	Primary Hardware Development Software Development Government Engineering Support System Testing Total	ort						66	7.7	3	4,175 5,068 408 279 9,930
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	and Plannin	g Information	ı (S in Thousand	ন্ত্র						
9	Performing Organizations: Contractor or Government Performing	Contract Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budoet	Budget	Rudoet	Budget to	<u>رو</u> ئو 1
	velonment Organiz	<u>Vehicle</u>	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Raytheon (AIP)	CPIF.	3Q96	N/A	N/A				9,243	Continuing	TBD
	ASC/RA	nizations							408	Continuing	TBD
	Lest and Evaluation Organizations Edwards, AFB	suc							279	Continuing	TBD
	Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	ent				Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001 9,243 408 279 9,930	Budget to Complete TBD TBD TBD TBD TBD	Total Program TBD TBD TBD
Δ.	Project 674820			Pag	Page 8 of 8 Pages	es			Exhib	Exhibit R-3 (PE 0305202F))5202F)

PE NUMBER: 0305205F
PE TITLE: Endurance Unmanned Aerial Vehicles

	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - O I	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305205F Endu	AND TITLE F Endur	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	manned	Aerial Ve	ehicles	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	183,017	77,866	109,215	70,106	48,467	49,465	50,559	Continuing	TBD
674755	Predator	4,261	3,907	3,696	3,773	3,839	3,917	3,994	Continuing	TBD
674799	Global Hawk	97,493	73,959	103,219	66,333	44,628	45,548	46,565	Continuing	TBD
674815	DarkStar*	33,715	0	0	0	0	0	0	0	53,783
674816	Common Ground Segment	47,548	0	0	0	0	0	0	0	47,548
674883	JTC/SIL MUSE	0	0	2,300	0	0	0	0	0	TBD
	Quantity of RDT&E Articles	0	0	2	0	0	0	0	0	0

Segment (DD1415-1 dated 24 Aug 99, DOD Ser. No. FY99-013 PA) was approved by Congress on 23 Dec 99. DarkStar and CGS funding lines have been transferred to the Note: The DarkStar portion of the HAE UAV ACTD was canceled on 29 Jan 99. Request for reprogramming of DarkStar funds to Global Hawk and Common Ground Global Hawk System program. The DarkStar and CGS funding lines will be deleted.

(U) A. Mission Description

(ACTD) They will provide all-weather, day/night, reconnaissance and surveillance in direct support of the Joint Forces Commander and integrate with existing airborne reconnaissance architectures for mission planning, data processing, exploitation and dissemination. The RQ-1A Predator UAV is a medium altitude endurance (MAE) UAV which completed its ACTD in FY96. The RQ-4A Global Hawk is a high altitude endurance (HAE) UAV. The Global Hawk, along with its associated ground Endurance Unmanned Aerial Vehicles (UAVs) are a family of unmanned vehicles developed under two separate Advanced Concept Technology Demonstrations station, the Common Ground Segment, is currently scheduled to complete its ACTD phase in June 00. The program will then transition to a 'normal' acquisition program in EMD.

(U) B. Budget Activity Justification

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a viable system and develop additional operational capabilities.

Page 1 of 25 Pages

Exhibit R-2 (PE 0305205F)

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	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	it)	DATE February 2000	2000
8UD 07	вироет Астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance	e Unmanned	וס דוד∟E Endurance Unmanned Aerial Vehicles	
©	C. Program Change Summary (\$ in Thousands)	FV 1000	FV 2000	FV 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	188,423 188,957	70,835 79,800	26,788	TBD
9	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research	-534			
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram	-4,382	-428		
9.6	e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	-1,024	-1,506	82,427	TBD
(3)	Significant Program Changes: (1) FY99 below threshold reprogramming transferred funds to higher Air Force priorities. (2) FY01 adjustment will fund Global Hawk engineering and manufacturing development (EMD) and operationalization.	ce priorities.	utionalization.		,
	Page	Page 2 of 25 Pages		Exhibit R-2 (PE 0305205F)	0305205F)

	RDT&	RDT&E BUDGET ITEM JU	ISTIFICATION SHEET (R-2A Exhibit)	ATION S	SHEET ((R-2A E	xhibit)		DATE		February 2000
80D(вирсет Астіліту 07 - Operational Sy s	обет АСТІVITY - Operational System Development			PE NUMBER 030520	PE NUMBER AND TITLE 0305205F Endu	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	manned	Aerial V	ehicles	PROJECT 674755
	COST (\$ i	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674755	755 Predator		4,261	3,907	3,696	3,773	3,839	3,917	3,994	Continuing	TBD
9	A. Mission Description The Predator unmanned conditions, at a range of and one Predator primar incorporates line-of-sigh high resolution imagery Computer and Intelligen interim configuration. B Mode IV. IR sensor imp UAV Common Automal ALLIED FORCE operat production funds in FYG with Tactical Control Sy	A. Mission Description The Predator unmanned aerial vehicle (UAV) is a medium altitude endurance UAV capable of sustained (long dwell) surveillance of critical targets, under most weather conditions, at a range of 500 nm from the launch area. Twelve Predator systems are being procured (each system consists of four air vehicles, one ground control station, and one Predator primary satellite link). The Predator is equipped with Electro-Optical/Infrared (EO/IR) and Synthetic Aperture Radar (SAR) sensors. Predator also incorporates line-of-sight(LOS), narrow-band UHF SATCOM and wide-band Ku-band SATCOM datalinks capable of providing near-real-time (NRT) transmission of high resolution imagery throughout the operational envelope. The system supports the theater commander and interfaces with the Communication, Communication, Computer and Intelligence (C4I) architecture. The first five Predator systems were procured either from an Advanced Concept Technology Demonstration or in an interim configuration. Beginning with the sixth system, Predators will be in a Baseline configuration, with upgrades including de-icing, UHFV/HF voice relay, and IFF Mode IV. IR sensor improvements, growth payloads, work station upgrades and reliability and maintainability improvements are being considered as part of Block I. UAV Common Automatic Recovery System (UCARS) has been added by Congress. As a result of a combat mission need statement (C-MNS) generated during ALLIED FORCE operations in Kosovo, one Predator system was outfitted with a temporary laser designator for use with precision guided munitions. Congress added production funds in FY00 for a permanent laser designator capability, tactical common data link (TCDL) and dual channel communications, and directed compliance with Tactical Control System standards; all will be added to Block I improvements.	dium altitude Twelve Pre r is equipped ATCOM and velope. The st five Predators m, Predators work station s) has been a system was nator capabil ded to Block	e endurance dator systen with Electr I wide-band s system sup tor systems will be in a unggrades a dded by Co outfitted wi lity, tactical	UAV capab ns are being o-Optical/In Ku-band S, ports the the were procus Baseline co and reliabilit ngress. As a that a tempora common da nents.	ole of sustair procured (e frared (EO/ ATCOM dat sater comma red either fr onfiguration, y and maint a result of a ary laser des ta link (TCI	ned (long dwach system cach system cach system calinks capab under and intom an Advan with upgrad ainability im combat miss ignator for u	ell) surveille consists of fe hetic Apertule of provide creases with cred Conceptes including provements ion need state of the precedum of the conceptes with precedum of the conceptes of the co	ance of critic bur air vehic re Radar (S ing near-rea the Comma of Technolog g de-icing, U are being of trement (C-N ission guided	al targets, un les, one groudes, one groudes, one groudes, one groudes, one groudes, one les, one groudes, on	nder most weather and control station, Predator also I transmission of Communication, Ition or in an ice relay, and IFF part of Block I. ted during Congress added ed compliance
999999	EY 1999 (\$ in Thousands) \$630 Prej \$904 Blo \$290 Rec \$1,763 Inte \$674 Inte \$4,261 Tot	Preparation for operational test and evaluation (OT&E) Block I improvements (dual channel communications, Ku SATCOM tunability, Air Force Mission Support System (AFMSS) integration) Rectified identified air vehicle and ground station deficiencies to improve R&M Integrated UAV Common Automatic Recovery System (UCARS) Integrated temporary laser designator in response to C-MNS Total	and evaluati nannel comm and ground s omatic Recov gnator in res	ion (OT&E) unications, station defic very System ponse to C-l	Ku SATCO iencies to in (UCARS) MNS	M tunability nprove R&N	,' Air Force l 1	Mission Sup	port System	. (AFMSS) ii	ntegration)
33333	FY 2000 (\$ in Thousands) \$800 Cor \$2,750 Blo \$357 Fiel \$3,907 Tots	duct OT&E/developments ck I improvements (IR ser d support (increased level al	il testing of Block I improvements isor improvements, growth payloads, w of support to prepare for formal OT&E)	lock I impro nents, grow prepare for	ovements th payloads, formal OT&	work statio tE)	n upgrades, ı	eliability ar	ıd maintaina	bility improv	rements)
۵.	Project 674755			Page .	Page 3 of 25 Pages	Ş			Ex	hibit R-2A (Exhibit R-2A (PE 0305205F)
					1470						

PROJECT ACTIVITY Concentational System Development PROJECT		RDT&E BUDGET ITEM JUS	SET ITEN	I JUSTIFI	CATION	TIFICATION SHEET (R-2A Exhibit)	R-2A Exh	libit)	Ω	DATE February 2000	y 2000
A Mission Description Continued EY 2001 (St in Thousands) S200 Compole TCDL integration Compoler TCDL integration Compoler TCDL integration Compoler TCDL integration S2,750 Compoler TCDL integration deficiencies to improve R&M S3,696 Total S2,750 Compoler TCDL integration deficiencies to improve R&M S3,696 Total S2,750 EX 1040 EX 1050 EX 2001 EX 2002 EX 2003 EX 2004 EX 2004 EX 2005 EX 2005 EX 2005 EX 2005 EX 2005 EX 2006 EX 2006 EX 2006 EX 2006 EX 2006 EX 2006 EX 2007 EX 2006 EX 2006 EX 2006 EX 2007 EX 2006 EX 2006 EX 2007 EX 2006 EX 2006 EX 2007 EX 2006 EX 2007 EX 2006 EX 2007 EX 2006 EX 2007 EX 2007 EX 2006 EX 2007 EX 2007 EX 2006 EX 2007 EX 2007 EX 2006 EX 2007 EX 2	BUI 07	DGET ACTIVITY - Operational System Dev	velopment			PE NUMBER 03052051	AND TITLE	ice Unman	ıned Aeria	I Vehicles	PROJECT 674755
EV 2001 (\$ in Thousands) \$200 Combote TCDL integration Complete TCDL integration accelerated to enable operations in Korea as soon as possible, as directed to the relef support Congress in FV00. C. Other Program Funding Summary (\$in Thousands) EV 1992 EV 2000 EV 2000 C. Other APPN AF RDT&E Congress in FV00. C. Other APPN AF RDT&E Congress in FV00. C. Other APPN ACCOUNTY (PE 129,750 S7,142 22,087 19,473 26,433 27,225 27,828 S205F) Predator MILCON, AF (PE 27245F) I.5,013 D. Acquisition Strategy They also are assigned total system performance responsibility (TSPR). With the exceptions of the Tactical Endurance Synthetic Aperture Radar and the Ka-be Predator primary satellite link, which are being procured as GFE, all procurement of Predator systems will be through General Atomics. Program will transition interim contractor logistics support (ICS) to contractor logistics support (ICS) to contractor logistics support (ICS) in FV00. E. Schedule Profile E. Schedule Profile FY 2001 FY 2002 FY 2002 FY 2003 FY 20	<u> </u>		ped								
B. Project Change Summary Delay in OT&E required realignment of fands allocated for testing. TCDL integration accelerated to enable operations in Korea as soon as possible, as directed Congress in FY00. C. Other Program Funding Summary (\$in Thousands) EY 1992	<u> </u>	EY 2001 (\$ in Thousar \$200 \$200 \$2,750 \$500 \$46 \$3,696	levelopmental TCDL integra entified air vel	testing for TCl tion iicle and groun	JL d station defic	iencies to impr	ove R&M				
Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete Actual Estimate Estimate Estimate Estimate Estimate Estimate Complete Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete Other APPN Aircraft Procurement, AF (PE 129,750 57,142 22,087 19,473 26,433 27,225 27,828 35205F), Predator MILCON, AF (PE 27245F) 15,013 D. Acquisition Stratezy Predator is in full scale production. Twelve systems plus attrition air vehicles are being acquired with the prime contractor, General Atomics Aeronautical System Predator primary satellite link, which are being procured as GFE, all procurement of Predator systems will be through General Atomics. Program will transition interim contractor logistics support (ICS) to contractor logistics support (ICS) in FY00. E. Schedule Profile Exchedule Profile Exhibit R-2A (PE 030	9		ment of funds	allocated for te	sting. TCDL i	integration acco	elerated to enal	ble operations	in Korea as so	oon as possible, as o	directed by
AF RDT&E Other APPN Aircraft Procurement, AF (PE 129,750 57,142 22,087 19,473 26,433 27,225 27,828 35205F), Predator MILCON, AF (PE 27245F) 15,013 D. Acquisition Strategy Predator is in full scale production. Twelve systems plus attrition air vehicles are being acquired with the prime contractor, General Atomics Aeronautical System Predator primary satellite link, which are being procured as GFE, all procurement of Predator systems will be through General Atomics. Program will transition interim contractor logistics support (ICS) to contractor logistics support (ICS) to contractor logistics support (ICS) by FY 1999 E. Schedule Profile FY 2000 E. Schedule RA55 Exhibit R-2A (PE 0305)	9	•	mmary (\$ in] FY 1999 Actual	Chousands) EY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	<u> </u>	, - ,	129,750	57,142	22,087	19,473	26,433	27,225	27,828		309,938
E. Schedule Profile FY 1999 FY 2000 Project 674755 Fage 4 of 25 Pages	3		n. Twelve sys an performanc hich are being ort (ICS) to con	tems plus attrit e responsibility procured as GI tractor logistic	ion air vehicle (TSPR). Wit E, all procure s support (CLS	s are being acq h the exceptior ment of Predat \$) in FY00.	uired with the is of the Tactic or systems wil!	prime contract cal Endurance ? Il be through G	tor, General A Synthetic Ape eneral Atomic	tomics Aeronautic rture Radar and the	
Page 4 of 25 Pages	<u> </u>					FY 1999		FY.2	5000	五	2001
		Project 674755			Pag	e 4 of 25 Pages				Exhibit R-2A (P	PE 0305205F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A Exhibit)	DATE February 2000
вирсет астіліту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT ial Vehicles 674755
(U) E. Schedule Profile Continued	FY 1999 FY 2000	FY 2001
(U) TEMP approval (U) Delivery of first Baseline system (U) OT&E (U) Retrofit of ACTD Systems complete * denotes completed event X denotes planned event	* 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 4 1 5 1 4 1 5 1 5 1 5 1 5 1 5 1 5 1	4 1 2 3 4 X X X X
Project 674755	Page 5 of 25 Pages	Exhibit R-2A (PE 0305205F)

	RDT&E PROGRAM ELEMENT		I/PROJECT COST BREAKDOWN (R-3)	OST BF	₹EAKDO\	NN (R-3)		DATE Fe	February 2000	00
800 04	вирсет астіvіту 07 - Operational System Development	pment		PE NUMBI 030520	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	ance Unm	anned Aeı	rial Vehic		PROJECT 674755
<u>(</u>	A. Project Cost Breakdown (\$ in Thousands)	lousands)				FV 1000	000	FV 2000	00	FV 2001
99999	Hardware/Software Demonstrations and test System integration and engineering support Other technical/engineering Total	Jpport				1 4.	1,600 1,126 978 557 4,261	1,342 1,342 950 1,195 420 3,907	8	2,067 2,067 500 704 425 3,696
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	Planning Informati	on (S in Thousan	(Sp						
9		2t I/Type Award or ling Obligation	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations General Atomics SS/CPFF PM TESAR	रF Apr 98	N/A N/A	N/A N/A	9,692 2,300	3,214	2,881	3,071	Continuing 0	TBD 2,300
	Support and Management Organizations ASC AD/NAVAIR Test and Evaluation Organizations	Su			320	417	426	425	Continuing 0	TBD 320
	AFOTEC Misc				795 330	630	009	200	0 0	2,225 330
<u> </u>	Government Furnished Property: Contract Method/Type Item Description Vehicle Product Development Property Support and Management Property	t VIXpe Award or ling Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Project 674755		Pag	Page 6 of 25 Pages	ges			Exhib	Exhibit R-3 (PE 0305205F)	305205F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	ECT COST BREAKDOV	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	ance Unm	anned Aer	rial Vehic		PROJECT 674755
(U) Government Furnished Property Continued: Test and Evaluation Property						
Subtotals	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotal Product Development	11,992	3,214	2,881	3,071	TBD	TBD
Subtotal Support and Management	320	417	426	425	TBD	TBD
Subtotal Test and Evaluation	1,125	630	009	200	0	2,555
Total Froject	15,437	4,261	3,907	3,096	IBD	180
Project 674755	Page 7 of 25 Pages			П Y	Exhihit R-3 (PE 0305205E)	らっつち
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RDT&E BUDGET ITEM JU	STIFIC/	ATION S	ISTIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305205	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	ance Un	manned	Aerial Ve	ehicles	РВОЈЕСТ 674799
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674799 Global Hawk	97,493	73,959	103,219	66,333	44,628	45,548	46,565	46,565 Continuing	TBD

- (1) The DarkStar portion of the HAE UAV ACTD was canceled on 29 Jan 99. Request for reprogramming of \$17M of FY99 DarkStar funds to Global Hawk and Common Ground Segment (DD1415-1 dated 24 Aug 99, DOD Ser. No. FY99-013 PA) was approved by Congress on 23 Dec 99.
- (2) Remaining FY01-05 DarkStar and FY00-05 CGS funding lines have been transferred to the Global Hawk System program, to be consolidated under the Global Hawk Program.. The DarkStar and CGS funding lines will be deleted.

A. Mission Description 3

The Global Hawk High Altitude Endurance (HAE) UAV program consists of the Global Hawk air vehicle and the Common Ground Segment (CGS). The Global Hawk System is being designed to provide continuous, all-weather, day/night, wide area surveillance and reconnaissance and includes the communications and interfaces with other theater systems required to support joint tactical warfighters at various levels of command. The Global Hawk air vehicle will be a fully automatic, high-altitude, 0.3m resolution. The design targeting accuracy is less than 20m CEP. The Global Hawk UAV is designed to standoff, operate in a low-to-moderate air defense threat architectures for tasking, mission planning, data processing, exploitation, and dissemination. It is designed to provide up to 40,000 sq. nmi. of wide area search radar imagery and either Electro-Optical (EO) or Infrared Radar (IR) imagery with 1m resolution per mission or up to 1900 EO, IR, or radar spot images per mission with long endurance unmanned aircraft that is directly responsive to theater tasking. Global Hawk will integrate with the existing tactical airborne reconnaissance environment and collect imagery while looking deep into high threat areas.

fabrication of the System Integration Lab, airframe improvements, and continued participation in Joint Military Exercises with the other services. Global Hawk entered the user demonstration phase in June 99 and since that time it has flown in 16 exercises, disseminated imagery to 5 different users, flown for extended periods of time In FY99 the Global Hawk System continued the user demonstration phase of the ACTD. Funding was used for fabrication and integration of air vehicles 3, 4, and 5, overwater (enroute to Alaska), and accumulated over 200 hours in FAA-controlled airspace.

Congressionally-authorized ACTD air vehicles for EMD, identifying those operational deficiencies to be addressed during the EMD, and preparation for transitioning to 00), and complete the Military Utility Assessment (MUA), which will render a final evaluation of Global Hawk's utility to the warfighter. Congress added \$15M to the In FY00, Global Hawk funding will complete the remaining work to be done in readying air vehicles 3, 4, & 5 for flight, finish the user demonstrations (ending in June Global Hawk funding line in FY00 to preserve the Global Hawk industrial base. This will be accomplished by ordering long-lead items to begin fabrication of the two EMD in FY01.

Project 674799

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Exhibit R-2A (PE 0305205F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	2000
8UD	вирсет Астіvіту 07 - Operational Sy s	вирсет Астииту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	al Vehicles	PROJECT 674799
(U)	A. Mission Description Continued	ion Continued			
	FY01 funding will be spiral development of Australia. The Austra	FY01 funding will be used to complete fabrication of air vehicles #6 & #7 (for EMD), No spiral development of sensors and other capabilities), initiate spiral development to Block Australia. The Australians are providing half of the funding for this demonstration effort.	air vehicles #6 & #7 (for EMD), Non-Recurring Engineering to evolve the Global Hawk to a Block 5 (including initiate spiral development to Block 10 (ORD-compliant air vehicles) and support the overseas demonstration in unding for this demonstration effort.	obal Hawk to a Block ort the overseas dem	c 5 (including onstration in
555555	EY 1999 (\$ in Thousands) \$13,881 Pro \$40,266 Fab \$28,463 Pro \$9,000 Sys \$5,883 Air	Product Development and Testing (Phase II) Fabrication and Integration of air vehicles #3, #4, and #5 (Phase IIB) Provided Contractor Demonstration and Evaluation Support necessary System Integration Lab (Development Test Model) Airframe Reliability and Maintainability Improvements (Producibility) Total	Product Development and Testing (Phase II) Fabrication and Integration of air vehicles #3, #4, and #5 (Phase IIB) Provided Contractor Demonstration and Evaluation Support necessary to accomplish Military Utility Assessment (Phase III) System Integration Lab (Development Test Model) Airframe Reliability and Maintainability Improvements (Producibility)	ient (Phase III)	
23333	FY 2000 (\$ in Thousands) \$38,201 Pro \$2,200 Inte \$58 Cor \$15,000 Add	Provide Contractor and Government Demonstration and Evaluation Support ne Integrated Logistic Support Complete Fabrication and Integration of air vehicles #3, #4, and #5 (Phase IIB) Added to FY00 program per Congressional plus-up for the following: Begin ACTD air vehicle #6 & #7 fabrication	Provide Contractor and Government Demonstration and Evaluation Support necessary to accomplish Military Utility Assessment (Phase III) Integrated Logistic Support Complete Fabrication and Integration of air vehicles #3, #4, and #5 (Phase IIB) Added to FY00 program per Congressional plus-up for the following: - Begin ACTD air vehicle #6 & #7 fabrication	Utility Assessment (Phase III)
<u>5</u>	\$12,798	 Preparation for transition to EMD in FY01 (Address operability, supportability Added to program per consolidation of CGS and Global Hawk into same BPAC: Development and test of demonstration CGS Contractor participation in MUA Government support, studies and related tasks for CGS 	 Preparation for transition to EMD in FY01 (Address operability, supportability and safety deficiencies identified during the ACTD) Added to program per consolidation of CGS and Global Hawk into same BPAC: Development and test of demonstration CGS Contractor participation in MUA Government support, studies and related tasks for CGS 	inned during the AC.	(D)
99	\$5,702 \$73,959	Government Support, Studies, and Related Tasks for Total	and Related Tasks for the Global Hawk program		
Щ	Project 674799	Pag	Page 9 of 25 Pages	Exhibit R-2A (PE 0305205F)	: 0305205F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2A Exhibit)	DATE February 2000	
80D 07	вирсет Астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	PROJECT 674799	
9	A. Mission Description Continued			
999	\$36,800 Fabrication and Integration of 2 additional ACTD air vehicles for EMD (#6 and #7) (Phase IIC) \$44,600 Non-recurring Engineering (NRE) to evolve the Global Hawk System to a Block 5 configuration — Includes spiral development of sensors and other capabilities	r vehicles for EMD (#6 and #7) (Phase IIC) bal Hawk System to a Block 5 configuration capabilities		
9999	\$10,000	 Spiral development (Block 5 to Block 10) of air vehicles which will satisfy needs identified in the MUA and ORD Operational Demonstration in Australia Provide Government Test and Evaluation Support Government Support, Studies and Related Tasks for the Global Hawk System Program 	1 ORD	
9	B. Project Change Summary A Defense Acquisition Executive (DAE) directive issued on 20 Aug 99, directed the Air Force to initiate an acquisition program with a MSII decision at the end of FY00, buy 2 EMD air vehicles in FY01, and begin production of 2 air vehicles per year in FY02.	irected the Air Force to initiate an acquisition program with cles per year in FY02.	1 a MSII decision at the end of	
	Approval was received from Congress on 23 Dec 99 on a DD1415-1, FY99-013 PA, to transfer \$17M of residual DarkStar funding to the Global Hawk and CGS programs. This transfer is not reflected in this PB submission, as the change has not yet been reflected in the funding database.	-013 PA, to transfer \$17M of residual DarkStar funding to has not yet been reflected in the funding database.	the Global Hawk and CGS	
	In response to concerns about preserving the Global Hawk industrial base, Congress added \$15M to the program in FY00 and added language authorizing the pu of two additional ACTD air vehicles for EMD. The Congressional add will be used to begin fabrication of these 2 air vehicles and to begin preparations for EMD, which will begin in FY01, following the MSII acquisition decision in 4QFY00.	Hawk industrial base, Congress added \$15M to the program in FY00 and added language authorizing the purchase Congressional add will be used to begin fabrication of these 2 air vehicles and to begin preparations for EMD, sition decision in 4QFY00.	language authorizing the purchase begin preparations for EMD,	Ø.
	FY99 and FY00 funds for the procurement of air vehicles 6 & 7 and Pre-Eincluded in our FY99 and FY00 Budget Justification. Congress approved FY99-013PA (approved Dec 99) to apply to this task. Additionally, in FY of this project is reflected within this FY01 Budget Request.	cles 6 & 7 and Pre-EMD (evolution of Global Hawk ACTD System into a FY99 Block 5 configuration) was not Congress approved the reprogramming of FY99 Darkstar funds via DD Form 1415-1, DOD Serial Number Additionally, in FY00 Congress added funds and authorized procurement of these additional vehicles. Initiation equest.	Block 5 configuration) was not 415-1, DOD Serial Number see additional vehicles. Initiation	_
<u>"</u>	Project 674799	Page 10 of 25 Pages	Exhibit R-2A (PE 0305205F)	
		767		

								DATE	
	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	USTIFICAT	ION SHI	EET (R	-2A Exh	ibit)		February 2000	, 2000
900 0 7	BUDGET ACTIVITY 07 - Operational System Development		РЕ 03	PE NUMBER AND TITLE 0305205F Endu	ND TITLE Enduran	ice Unmar	ıned Aeri	ıס ਸਾ⊓E Endurance Unmanned Aerial Vehicles	PROJECT 674799
<u>(G</u>	C. Other Program Funding Summary (\$ in Tho FY 1999 Actual	ousands) FY 2000 EY 2001 Estimate Estimate		FY 2002 Estimate	EY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
999	l trans	22,388	388 9 ACTD to a	91,457 a Global Hav	95,315 wk System pr	83,974 roduction prog	72,380 gram that will	80 include CGS.	TBD
9	D. Acquisition Strategy The Global Hawk HAE UAV program began as an ACTD, under DARPA, in 1994. Five contractors originally submitted design proposals, with Northrop Grumman (Ryan Aeronautical Center) competitively selected to lead the design / development effort. Under the Development Phase agreement, the contractor will build and te five Global Hawk air vehicles, and a developmental ground segment. Streamlined procurement, using Other Transaction Authority, is being used to delete all non value-added tasks and documentation from the program.	ACTD, under DAl o lead the design / ground segment. am.	RPA, in 199 [,] 'developmer Streamline	4. Five con nt effort.	ntractors orig Under the De nent, using C	inally submitte evelopment Ph ether Transacti	ed design pro ase agreemer on Authority	PA, in 1994. Five contractors originally submitted design proposals, with Northrop Grumman levelopment effort. Under the Development Phase agreement, the contractor will build and test Streamlined procurement, using Other Transaction Authority, is being used to delete all non	p Grumman I build and test lete all non
	The Air Force assumed responsibility for the ACTD in October 98. Global Hawk will finish the ACTD phase in June 00, and the Military Utility Assessment (MUA) will be delivered in 4QFY00, providing an overall evaluation of Global Hawk's military utility and operational suitability. An acquisition decision in late 2000 follows delivery of the Military Utility Assessment from JFCOM.	o in October 98. (syaluation of Glob	Global Hawk al Hawk's m	c will finish ulitary utili	the ACTD Its and operat	phase in June (ional suitabilii	00, and the M ty. An acqui	ilitary Utility Asses sition decision in lat	sment (MUA) te 2000 follows
	Based on the DAE directive of 20 Aug 99, the program will transition from an ACTD to a one year EMD (FY01) to an acquisition program (beginning in FY02). The EMD program consists of the total Global Hawk System which includes the CGS. EMD will evolve the Global Hawk System to a Block 5 configuration. While not completely ORD-compliant, these Block 5 air vehicles will have the minimum upgrades necessary to operationalize them for deployment. The program will utilize sy development to operationalize the design of the EMD air vehicles to Block 5 to Block 10. Block 10 will correct deficiencies identified in the MUA and ORD, specifically those related to safety of flight, operability and supportability.	am will transition fron stem which includes thes will have the mining a sir vehicles to Blocity and supportability.	from an AC les the CGS. rainimum upg Block 5 to Bl lity.	TD to a on EMD wi grades nece lock 10. B	e year EMD ill evolve the sssary to oper lock 10 will o	(FY01) to an E Global Hawk ationalize ther correct deficie	acquisition pr System to a I n for deployr ncies identifi	n will transition from an ACTD to a one year EMD (FY01) to an acquisition program (beginning in FY02). The m which includes the CGS. EMD will evolve the Global Hawk System to a Block 5 configuration. While not will have the minimum upgrades necessary to operationalize them for deployment. The program will utilize spiral air vehicles to Block 5 to Block 10. Block 10 will correct deficiencies identified in the MUA and ORD, and supportability.	n FY02). The n. While not will utilize spiral ORD,
	In FY02 the program will commence procurement of 2 Block 5 air vehicles per year. The next upgrade will be Block 10 (ORD-compliant) air vehicles. Block 10 air vehicles are not budgeted in the current FYDP but will be addressed in future POM submissions.	of 2 Block 5 air vehicles per year. The next or ill be addressed in future POM submissions.	thicles per ye 1 future PON	ear. The ne A submissic	ext upgrade w ons.	vill be Block 1	0 (ORD-com	pliant) air vehicles.	Block 10 air
9	E. Schedule Profile			FY 1999		EY 2000	<u>7000</u>	EY	FY 2001
ц.	Project 674799		Page 11 of	Page 11 of 25 Pages				Exhibit R-2A (PE 0305205F)	E 0305205F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2)	△ Exhibit		DATE		February 2000	
BUDGET ACTIVITY 07 - Operatio	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endu	וז∟נ Idurance l	וס דודרב Endurance Unmanned Aerial Vehicles	Aerial Ve	ehicles	PROJECT 674799	ЕСТ 799
(U) E.Sc	E. Schedule Profile Continued	FY 1999	-	EY 2000	4	-	FY 2001	4
(U) Demo (U) ACTI (U) ACIII (U) Acqu (U) Start (U) Start (U) Austr X den X den	Demonstration support award User field demos with warfighters ACTD ends Military Utility Assessment Acquisition decision Start of EMD Program, purchase of air vehicles 6 & 7 Australian Demonstration * denotes completed event X denotes planned event		•		* ××	· ×		
Project	Project 674799	Page 12 of 25 Pages			Ex	thibit R-2A	Exhibit R-2A (PE 0305205F)	:05F)

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	RDT&E PROGRAM ELEMENT	RAM ELE		I/PROJECT COST BREAKDOWN (R-3)	ST BR	EAKDOV	VN (R-3)		DATE Fe	February 2000	8
8UD(вирдет астилту 07 - Operational System Development	Developme	int		PE NUMBER AN 0305205F	PE NUMBER AND TITLE 0305205F Endura	ыр тітге Endurance Unmanned Aerial Vehicles	anned Aei	ial Vehic		РКОЈЕСТ 674799
(G)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp				FV 1990	000	FV 2000	ے	FV 2001
9	Product Development and Testing (Phase II)	sting (Phase II)					13,881	£] ≅	77	> 1	1002
3	Fabrication and Integration of air vehicles #3, #4, and	fair vehicles #2		#5 (Phase IIB)			40,266	997	58		
9	Provide Contractor Demonstration and Evaluation Support necessary to accomplish Military	ration and Evalu	aation Support n	ecessary to accor	nplish Milit	ary	28,463	163	22,735		
(E)	Outiny Assessment (rnase III) System Integration Lab (Development Test Model)	.) elopment Test l	Model)				0.6	9.000			
3	Airframe Reliability and Maintainability Improvements (Producibility)	ntainability Im	provements (Pro	ducibility)			5,8	5,883			
9	Provide Government Demonstration and Evaluation Support necessary to accomplish Military	stration and Eva	aluation Support	necessary to acc	omplish Mi	litary			15,466		
	Utility Assessment										
9	FY00 Congressional Plus-up for the following:	for the followin	ıg:						15,000	_	
9	Begin air vehicle #6 and #/ fabrication	1 #/ fabrication	. EXO1								
) E	Begin preparation for transition to EMLD in F 101 Integrated I ocietic Current	ansidon to eivi	O III F I OI						2 200		
<u> </u>	integrated Logistic Support Added to proceed not consolidation of CGS and Global Hamb into same BDAC.	Sold of Cas	and Global Han	A Day Come DD	ن				12,200		
<u> </u>	Added to program per consolidation of CGS and C	idation of CGS f demonstration	and Global Hav	VK INIO SAINE DF?	زز				17,130	_	
9	- Contractor participation in MUA	in MUA									
3	Government support, studies and related tasks for the CGS	udies and relate	d tasks for the C	SD							
9	Government Support, Studies and Related Tasks for the Global Hawk System	s and Related Ta	asks for the Glol	oal Hawk System					5,702	01	5,819
9	Fabrication and Integration of air vehicles #6 and #7 (Phase IIC)	f air vehicles#	5 and #7 (Phase	IIC)							36,800
9	Non-recurring Engineering (NRE) to evolve the Global Hawk System to a Block 5 configuration	NRE) to evolve	the Global Haw	k System to a Blo	ock 5 config	guration					44,600
9	Operational Demonstration in Australia	n Australia									10,000
99	Provide Government Test and Evaluation Support Total	d Evaluation Su	pport				97,493	193	73,959		6,000 103,219
)	B. Budget Acquisition History and Planning Inform	rv and Plannii	ng Information	lation (\$ in Thousands)	æ		•		•		•
, (•		,		•						
€	Performing Organizations: Contractor or	Contract									
	Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Project 674799			Рас	Page 13 of 25 Pages) Jec			Exhibi	Exhibit B-3 (PE 0305205E))5205E)
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KUI &E PROGRAM ELEMEN I	NOSEG! O	The NI IMPED AND TITLE	AND TITLE					PROJECT
BUDGET ACTIVITY 107 - Operational System Development		0305205F		Endurance Unmanned Aerial Vehicles	nned Aer	ial Vehic		674799
(U) Performing Organizations Continued: Product Development Organizations Ryan Aeronautical Center SS/CPFF/IF	N/A	N/A	0	97,493	48,172	84,200	84,200 Continuing	TBD 776
Various Support and Management Organizations Various Support ASC	N/A	N/A	0	0	8,855	13,019	Continuing	TBD 1,630
Test and Evaluation Organizations AFFTC AFOTEC	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	N/N N/A N/A	000	000	7,250 5,825 1,250	3,000 2,000 1,000	000	TBD TBD TBD
Subtotals Subtotal Product Development			Total Prior to FY 1999 0	Budget FY 1999 97,493	Budget EY 2000 49,149 10,485	Budget EY 2001 84,200 13,019	Budget to Complete TBD TBD	Total Program TBD TBD
Subtotal Support and Management Subtotal Test and Evaluation Total Project			0	0 97,493	14,325 73,959	6,000 103,219	TBD TBD	TBD
	,					й 5	Evhibit R-3 (PE 0305205E)	0305205E)
Project 674799	Pa	Page 14 of 25 Pages	çes			3		

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEM JU	STIFIC/	ATION S	жеет (R-2A E	xhibit)		DATE	February 2000	y 2000
BUD(BUDGET ACTIVITY 10.2 - Onerational System Develonment	-tomanole			PE NUMBER AND TITLE	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	nl obus	beauca	Apriol V	obicles	PROJECT 674815
5	COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674815	15 DarkStar*		33,715	0	0	0	0	0	0	0	53,783
()	A. Mission Description DarkStar portion of HAE ACTD cancelled 29 Jan 99. Global Hawk and CGS programs. All FY 01 through	cancelled 29 Jan 99. All FY 01 through	_	3 99 a DD14 ave been trai	On 24 Aug 99 a DD1415-1 was submitted to Congress to transfer \$1 05 funds have been transferred to the Global Hawk System Program.	omitted to C re Global Ha	ongress to tr	ansfer \$17N Program.	A of residual	On 24 Aug 99 a DD1415-1 was submitted to Congress to transfer \$17M of residual DarkStar funding to the 05 funds have been transferred to the Global Hawk System Program.	nding to the
999	FY 1999 (\$ in Thousands) \$16,715 Contract / Progr \$17,000 Transfer to Glo production brea begin pre-EMD demonstrations.	Ids) Contract / Program Closeout Transfer to Global Hawk and Common Ground Segment to correct Global Hawk 'must fix' items identified during flight test, mitigate a one-year production break, and enhance pre-Engineering Manufacturing Development (EMD) activities as required by Congress. Funds are also needed to begin pre-EMD on the CGS subprogram. Both Global Hawk and CGS require the procurement of test spare parts to support user demonstrations.	Common Gr. pre-Engined	ound Segme ering Manufi Both Global	nt to correct acturing Dev Hawk and C	Global Haw relopment (F	k 'must fix' 3MD) activii the procurer	items identi ties as requii nent of test	fied during : red by Cong spare parts t	flight test, mi jress. Funds a	igate a one-year ire also needed to r
9	\$33,715 Total										
999	FY 2000 (\$ in Thousands) \$0 No funds. I \$0 Total	ids) No funds. Line zeroed out by Congress in 00. Total	Congress in	.00							
999	FY 2001 (\$ in Thousands) \$0 Project fund \$0 Total	<u>ids)</u> Project funds have been merged Total	d into the G	lobal Hawk	into the Global Hawk system program.	ram.					
9	B. Project Change Summary										
9	C. Other Program Funding Summary (S in Thousands) FY 1999 FY 2000 Actual Retinate	EY 1999 FY		FY 2001 Estimate	FY 2002 Fetimate	FY 2003 Fetimate	FX 2004 Fertimate		FY 2005 Fetimate	Cost to	Total Cost
99	AF RDT&E Other APPN										
Δ.	Project 674815			Page 1	Page 15 of 25 Pages	Sc			ű	chibit R-2A (I	Exhibit R-2A (PE 0305205F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	CATION SHEET (R-2A Exhibit)	DATE February 2000
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	ial Vehicles 674815
(U) D. Acquisition Strategy N/A		
(U) E. Schedule Profile	FY 1999 FY 2000	FY 2001
(U) Program terminated* denotes completed eventX denotes planned event		4 1 2 3
Project 674815	Page 16 of 25 Pages	Exhibit R-2A (PE 0305205F)

	RDT&E PROGRAM ELEMENT	RAM ELE	EMENT/P	/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDOV	VN (R-3)		DATE Fe	February 2000	l s
908 04	вирсет астіvіту 07 - Operational System Development	Developme	ınt		PE NUMBER AN 0305205F	PE NUMBER AND TITLE 0305205F Endura	ттге Endurance Unmanned Aerial Vehicles	anned Aer	rial Vehicl		PROJECT 674815
(5)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp				EV 1000	000	000C A3		EV 2001
99	Contract/program close-out transfer to Global Hawk and Common Ground Segment to correct Global Hawk must fix items	Common Grou	nd Segment to	correct Global H	awk must fix	c items	16,715 17,000	21.7 00	F1 400	- o F	0 0
9	identified during flight test, mitigate a one-year production break, and enhance pre-Engineering Manufacturing Development (EMD) activities as required by Congress. Total	nitigate a one-y (EMD) activiti	ear production es as required	n break, and enhalls by Congress.	nce pre-Engi	neering	33,715	715	0	•	0
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannii	g Informatic	on (\$ in Thousan	(sp						
<u> </u>	Performing Organizations: Contractor or Government Performing Activity Product Development Organizations	Contract Method/Type or Funding Vehicle zations	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	LMSW Transfer to Global Hawk and	SS/CPIF		N/A N/A	N/A N/A	20,068	16,715 17,000	0	0	0	36,783 17,000
	Common Ground Segment - Ryan Aeronautical Center Support and Management Organizations Test and Evaluation Organizations	ganizations tions									
<u> </u>	Government Furnished Property: Control Meth Item Oescription Product Development Property Support and Management Property Test and Evaluation Property	perty: Contract Method/Type or Funding Vehicle ty	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
L	Project 674815			Pag	Page 17 of 25 Pages	ges			Exhibi	Exhibit R-3 (PE 0305205F)	05205F)

RDT&E PROGRAM ELEMENT/PROJECT	JECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY	PENUMBER AND TITLE	mul obuc	A Pound	rial Vehic		PROJECT 674815
of - Operational System Development	Total Prior	Budget	Budget	Budget	dget to	Total
Subtotals	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Product Development	20,068	33,715	0	0	0	53,783
Subtotal Support and Management						
Subtotal Test and Evaluation Total Project	20,068	33,715	0	0	0	53,783
				: !		
Project 674815	Page 18 of 25 Pages			Exhib	Exhibit R-3 (PE 0305205F)	35205F)

	RDT&E BI	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JSTIFIC,	ATION S	знеет (R-2A E	xhibit)		DATE	February 2000	y 2000
BUD 7	BUDGET ACTIVITY O7 - Onorational System Development	Dovelorment			PE NUMBER AND TITLE	AND TITLE	PE NUMBER AND TITLE	bounca	A prio V	phiolog	PROJECT C74846
	COST (\$ in Thousands)	usands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674816	16 Common Ground Segment	+ -	47,548	0	0	0	0	0	0	0	47,548
9	A. Mission Description The Common Ground Segment (CGS) is an integral part of the HAE UAV system. With the cancellation of the DarkStar portion of the HAE UAV ACTD, there is no need to maintain a separate BPAC for the CGS. Accordingly, funds from FY00-05 have been merged into the Global Hawk program (BPAC 674799).	ment (CGS)is an integral	part of the H	AE UAV sys	stem. With the 00-05 have b	he cancellati	ion of the Di	ırkStar porti obal Hawk p	ion of the H.	AE UAV AC	TD, there is no
55555	EY 1999 (\$ in Thousands) \$11,764 Devel \$14,303 Confr \$10,336 Gove \$11,145 Gove	nds) Development and test in support of Global Hawk system Contractor participation in Military Utility Assessment Government participation in Military Utility Assessment Government support, studies, and related tasking support of the HAE UAV ACTD programs Total	oort of Globa ilitary Utility Military Utilit and related t	l Hawk syste ' Assessment ty Assessme. asking suppc	em t ant ort of the HA	E UAV AC	TD program	S			
999	FY 2000 (\$ in Thousands) \$0 Projection Projection Projection Projection Projection Projection Projection Property Proper	<u>nds)</u> Project funds have been merged Total	ged into Global Hawk	al Hawk							
999	FY 2001 (\$ in Thousands) \$0 Proje \$0 Total	nds) Project funds have been merged Total	ged into Global Hawk	al Hawk							
9	B. Project Change Summary Project funds have been transferred into the Global Hawk System program (BPAC 674799)	ary nsferred into the Global F	ławk System	ı program (B	PAC 674799	c					
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	ng Summary (\$ in Thous FY 1999 FY Actual Es		FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	—	FY 2005 Estimate	Complete	Total Cost
999	AF RDT&E Other APPN Aircraft Procurement, AF (HAE UAV)			22,966	94,046	97,978	-			Continuing	TBD
Ω.	Project 674816			Page 1	Page 19 of 25 Pages	Se			ũ	chibit R-2A (F	Exhibit R-2A (PE 0305205F)

N SHEET (R-2A Exhibit) DATE February 2000	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles 674816	EY 2002 FY 2003 FY 2004 FY 2005 Cost to Estimate Estimate Estimate Complete TD to a Global Hawk System production program that will include CGS and be fur	lobal Hawk System transitions from an ACTD to a formal acquisition program. $\frac{FY1999}{1} \qquad \qquad \frac{FY2000}{3} \qquad \qquad \frac{FY2001}{4}$	
RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	вирсет астіліту 07 - Operational System Development	(U) C. Other Program Funding Summary (\$ in Thousands) EY 1999	 (U) D. Acquisition Strategy CGS funds have been merged with Project 674799 - Global Hawk a (U) E. Schedule Profile (U) Demonstration support award (U) Fabricate demo CGS * denotes completed event X denotes planned event 	

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT C	OST BE	COST BREAKDOWN (R-3)	VN (R-3)		DATE FA	February 2000	٤
									-	Didaiy 20	8
80C 04	BUDGET ACTIVITY 07 - Operational System Development	Developme	nt		PE NUMBER AI 0305205F	_	ıD TITLE Endurance Unmanned Aerial Vehicles	anned Aer	ial Vehicl		РРОЈЕСТ 674816
(5)	A. Project Cost Breakdown (\$ in Thousands)	n (\$ in Thousan	(Sp				FV 1999	000	FV 2000	_	FV 2001
9	Development and test in support of Global Hawk system	port of Global H	awk system				11,764	<u>\$</u>	0	-	1004 1 1
<u> </u>		he Military Utilit	y Assessment	.			14,303	103	0		
<u> </u>	Government Farticipation in the Military Utility Assessment Government Support, Studies and Related Tasks in support of the HAE UAV ACTD Programs Total	i the Military Uti ss and Related Ta	iity Assessme asks in suppor	ent rt of the HAE UA`	V ACTD Pro	grams	10,550 11,145 47,548	.50 .45 .48			
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	ig Informatio	ın (S in Thousan	(SI						
3	Performing Organizations:	•=									
	Contractor or	Contract	-								
	Covernment	Method/Lype	Award or	Pertorming A etimitu	Project	Total Drive	Dudget	Dudget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	EY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations	uzations									
	Raytheon			N/A	N/A		13,485	0	0	0	13,485
	Ryan Aeronautical Center			N/A	N/A		10,795	0	0	0	10,795
	Various			N/A	N/A		994	0	0	0	994
	Support and Management Organizations	rganizations									
	ASC			N/A	N/A		2,272	0	0	0	2,272
	Various			N/A	N/A		9,716	0	0	0	9,716
	Test and Evaluation Organizations	<u>rations</u>									
	AFFTC			N/A	N/A		4,307	0	0	0	4,307
	AFOTEC			N/A	N/A		4,914	0	0	0	4,914
,	Various			N/A	N/A		1,065	0	0	0	1,065
9	Government Furnished Property: Cont	operty: Contract									
	Item	Method/1ype or Funding	Award or Obligation	Delivery		Total Prior	Budget	Budget	Budget	Budget to	Total
	Description	Vehicle	Date	Date		to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Project 674816			Page	Page 21 of 25 Pages	Segi			Exhibi	Exhibit R-3 (PE 0305205F)	05205F)

RDT&E PROGRAM ELEMENT/PROJECT	PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fet	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endura	io गा∟E Endurance Unmanned Aerial Vehicles	ned Aeri	al Vehicle		РРОЈЕСТ 674816
(U) Government Furnished Property Continued: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Product Development Property Support and Management Property Test and Evaluation Property	Total Prior to FY 1999	Budget]	Budget FY 2000	Budget FY 2001	<u>Budget to</u> Complete	Total Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999	Budget 525,274 11,988 10,286 47,548	Budget	Budget EY 2001 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Budget to Complete 0 0 0 0 0	Total. Program 25,274 11,988 10,286 47,548
Project 674816	Page 22 of 25 Pages			Exhibit	Exhibit R-3 (PE 0305205F)	5205F)

Part		RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JSTIFIC,	ATION S	энеет (R-2A E	xhibit)		DATE	February 2000	y 2000
COST (5 in Thousands)	BUD	GET ACTIVITY			PE NUMBEF	AND TITLE	:				PROJECT
Pry 1999 Fry 2000 Fry 1990 Fry 2000	0	- Operational System Development			0305205	F Endur	ance Un	manned	Aerial V	ehicles	674883
A. Mission Description The Joint Technology Center/System Integration Laboratory Multiple UAV Simulation Environment (TIC/SIL MUSE) provides a simulation tool for development of manys bactical LAV (TUAV) and the Nary's vertical takeoff UAV (VTUAV). The level of future Air Force participation in this project beyond FYO1 is of on-going discussions between the Air Force and OSD. So Total EY 2000 (5 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (5 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (5 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (5 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (5 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (6 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (6 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (6 in Thousands) So Total B. Project Change Summary A separate project code within PE 32205F provides visibility of the funds supporting the JTC/SIL MUSE. EX 2000 (6 in		COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
A Mission Description The Joint Technology Center/System Integration Laboratory Multiple UAV Simulation Environment (JTC/SIL MUSE) provides a simulation tool for development of organizations between the Air Force and OSD. EV 1999 (\$\$ in Thousand\$\$) So Total EY 2000 (\$\$ in Thousand\$\$) So So So So Total EY 2000 (\$\$ in Thousand\$\$) So	6748		0	0	2,300	0	0	0	0	0	TBD
EV 2000 (\$ in Thousands) Su	9	A. Mission Description The Joint Technology Center/System Integration Lab the Army's tactical UAV (TUAV) and the Navy's ver of on-going discussions between the Air Force and C	boratory Mul rtical takeoff OSD.	tiple UAV S 'UAV (VTU	imulation Er AV). The le	avironment ((JTC/SIL M	USE) provic	des a simula ı in this proj	tion tool for c	levelopment of Y01 is the subject
FY 2000 (\$ in Thousands) S0 S0 S0 S0 S0 Total FY 2001 (\$ in Thousands) S2,300 Total B. Project Change Summary A separate project code within PE 35205F provides visibility of the funds supporting the JTC/SIL MUSE. The level of future Air Force participation in this properties to on-going discussions between the Air Force and OSD. C. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000 EY 2000 EY 2001 EY 2002 EY 2002 EY 2003 EY 2004 EY 2004 EY 2004 EY 2004 EY 2004 EY 2006 Other APPN Actual Estimate Actual Est	999	EY 1999 (\$ in Thousands) \$0 \$0 Total									
FY 2001 (\$ in Thousands) \$2,300 ITC/SIL MUSE \$2,300 ITC/SIL MUSE B. Project Change Summary A separate project code within PE 35205F provides visibility of the funds supporting the JTC/SIL MUSE. The level of future Air Force participation in this proposed FY01 is the subject of on-going discussions between the Air Force and OSD. C. Other Program Funding Summary (\$ in Thousands) EY 2000 EY 2001 EY 2002 EY 2002 EY 2003 EY 2004 EY 2003 EY 2004 EY 2004 EY 2005 EY 2004 EY 2005 EY 2004 EY 2005 EY 2004 EY 2005 EY 2005 EY 2006 Ocontinuing D. Acquisition Strategy N/A Exhibit R-2A (PE 030	555	2000 (\$ in Thousar									
A separate project Change Summary A separate project code within PE 35205F provides visibility of the funds supporting the JTC/SIL MUSE. The level of future Air Force participation in this property a separate project code within PE 35205F provides visibility of the funds supporting the JTC/SIL MUSE. The level of future Air Force participation in this property and one-going discussions between the Air Force and OSD. C. Other Program Funding Summary (\$ in Thousands) EX 1999	333	II (\$ in Thousan									
C. Other Program Funding Summary (\$ in Thousands) EX 2000 EX 2001 EX 2002 EX 2003 EX 2004 EX 2005 Cost to Actual Estimate Estimate Estimate Estimate Estimate Complete AF RDT&E 0 0 0 0 0 0 Continuing Other APPN D. Acquisition Strategy N/A Page 23 of 25 Pages Exhibit R-2A (PE 030	<u>(i)</u>	B. Project Change Summary A separate project code within PE 35205F provides v beyond FY01 is the subject of on-going discussions b	visibility of the zetween the z	he funds supp Air Force and	porting the J d OSD.	TC/SIL MU	SE. The lev	el of future	Air Force p	articipation ir	ı this project
AF RDT&E Actual complete Estimate complete Complete Other APPN 0 2,300 0	9	C. Other Program Funding Summary (\$ in Thous: EX 1999 April 154		Y 2001	FY 2002	FY 2003	_		2005	Cost to	Total Cost
D. Acquisition Strategy N/A roject 674883	99	0		2,300	0	0				Continuing	TBD
Page 23 of 25 Pages	9										
	Ω.	roject 674883		Page 2	3 of 25 Page	SS			ű	thibit R-2A (I	PE 0305205F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	неет (R-	2A Exhil	bit)	DATE	February 2000	y 2000	
вирсет аститту 07 - Operational System Development	PE NUMBER AND TITLE 0305205F Endu	io Tit∟e Enduran c	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	Aerial Ve	hicles	PROJECT 674883	⊢ ღ
(U) E. Schedule Profile							
	FY 1999	4	FY 2000	4	, [-	FY 2001	4
(U) No activity planned		-		-	1	ì	
Project 674883	Page 24 of 25 Pages			ΩÅ	ibit R-2A (F	Exhibit R-2A (PE 0305205F)	Œ

	RDT&E PROGRAM ELEMENT	SRAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BI	REAKDON	VN (R-3)		DATE Fe	February 2000	00
[™] 70	вирсет астилту 07 - Operational System Development	Developme	r t		PE NUMBI 030520	PE NUMBER AND TITLE 0305205F Endurance Unmanned Aerial Vehicles	ince Unm	anned Aeı	rial Vehic		РRОЈЕСТ 674883
9) A. Project Cost Breakdown (\$ in Thousands)	n (\$ in Thousan	(<u>sp</u>				EV 1000	000	0000 25	9	EV 2001
99) No activity planned) Total							222	11	a	F.1 4001
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	g Informatic	ın (\$ in Thousan	ds)						
<u>E</u>	Performing Organizations: Contractor or	Contract									
	Government Performing	Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Product Development Organizations	Vehicle izations	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	<u>Program</u>
	No activity planned <u>Support and Management Organizations</u> Test and Evaluation Organizations	ganizations							2,300	Continuing	TBD
9		perty:									
		Contract Method/Type	Award or								
	<u>Item</u> Description	or Funding Vehicle	<u>Obligation</u> Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Property Support and Management Property	<u>tv</u> onertv									
	Test and Evaluation Property										
						Total Prior	Budget	Budget	Budget	Budget to	Total
	Subtotals	•				10 F Y 1999	FX 1999	FX 2000	FY 2001	Complete	Frogram
	Subtotal Froduct Development Subtotal Support and Management	nt ement							2,300	1BD	TBD
	Subtotal Test and Evaluation										
	Total Project								2,300	TBD	TBD
	Project 674883			Page	Page 25 of 25 Pages	ges			Exhibi	Exhibit R-3 (PE 0305205F)	05205F)

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PE NUMBER: 0305206F
PE TITLE: Airborne Reconnaissance Systems

	RDT&E BUDGET ITEM JI	USTIFICATION SHEET (R-2 Exhibit)	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - O	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBEF 0305206	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	rne Reco	nnaissa	nce Syst	ems	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	123,538	136,221	136,913	105,398	142,410	151,187	125,433	Continuing	TBD
674817	674817 Joint SIGINT Avionics Family (JSAF)	78,073	94,296	85,121	60,947	73,238	69,800	46,668	Continuing	TBD
674818	Advanced Technology	9,826	9,200	2,126	1,085	18,192	29,299	25,568	Continuing	TBD
674819	Common Data Link (CDL)	35,639	32,725	44,799	38,506	46,118	47,047	47,974	Continuing	TBD
674882	Compass Bright	0	0	4,867	4,860	4,862	5,041	5,223	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	Continuing	TBD

U) A. Mission Description

This program funds and coordinates the development of advanced defense airborne reconnaissance technologies to ensure systems satisfy strategies and architectures to political alignments. This program funds the development of the technologies that respond to evolving threats by emphasizing multi-service utility, interoperability among existing and planned complementary systems (i.e., sensors, ground systems, data links, and manned and unmanned platforms), and timely dissemination of assure U.S. ability to support warfighter intelligence needs in the face of rapidly developing threat technology, proliferation of advanced weaponry, and uncertain intelligence information to operational forces.

U) B. Budget Activity Justification

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

) C. Program Change Summary (\$\sin \text{Thousands})

		FY 1999	FY 2000		Total Cost
9	Previous President's Budget (FY 2000 PBR)	126,402	124,608	136,591	TBD
9	Appropriated Value	126,768	139,608		
9	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-366	-1		
	b. Small Business Innovative Research				

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Page 1 of 21 Pages

Exhibit R-2 (PE 0305206F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ION SHEET (R-2 Exhib	žiť)	DATE February 2000	000
8UD(07	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airborne	ытп∟Е Airborne Reconnaissance Systems	e Systems	
(£)	C. Program Change Summary (\$ in Thousands) Continued	DO 1 VII	000C AE	100 XI	F
	c. Omnibus or Other Above Threshold Reprogram	2277	-749	F 1 2001	1 otal Cost
	e. Rescissions	-2,17,3 -691	-2,637		
99	 1. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR 	123,538	136,221	322 136,913	TBD
9	Significant Program Changes: Funding for U-2 Advanced Defensive Systems in FY01-03 was transfer PE 0305206G into PE 0305206F.	-03 was transferred to PE 0305202F, Dragon U-2. Funding for Compass Bright in FY01-05 was tranferred from	Funding for Compass	Bright in FY01-05 was tran	nferred from
		Page 2 of 21 Pages		Exhibit R-2 (PE 0305206F)	305206F)

	RDT&	RDT&E BUDGET ITEM JU	STIFICATION SHEET (R-2A Exhibit)	VTION S	HEET ((R-2A E	xhibit)		DATE	Februa	February 2000
8UD 07	вирсет Астіvіту 07 - Operational Sy s	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305206	PE NUMBER AND TITLE 0305206F Airbo	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	nnaissaı	nce Syste	ems	PROJECT 674817
	COST (\$ ii	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674817	.17 Joint SIGINT Avionics Family (JSAF)	ics Family (JSAF)	78,073	94,296	85,121	60,947	73,238	69,800	46,668	Continuing	TBD
(5)	A. Mission Description Provides funds for the de upgrades, to meet the 20 reconfigurability. The iprovide competitive opp (COTS) and government Airborne SIGINT Archit mechanism to begin dewand unmanned) for integ EP-3E.	A. Mission Description Provides funds for the development of sensor systems to modernize the SIGINT capability of the DoD airborne reconnaissance fleet, through a series of incremental upgrades, to meet the 2010 threat. Upgrades will embrace an open systems approach, with recognized standards, commonality, modularity, scaleability, and reconfigurability. The incremental approach will ensure access to the latest technology as future budget year dollars become available. The open architecture will provide competitive opportunities to contractors who find innovative ways to use new technologies. It will also permit maximum use of commercial-off-the-shelf (COTS) and government-off-the-shelf (GOTS) capabilities developed for other applications. The goal is full compliance with all CRD requirements and all Joint Airborne SIGINT Architecture (JASA) by 2010. The development and modification of the lead integration aircraft (EP-3E) for the initial JSAF modules will provide a mechanism to begin development and operational assessment of the JSAF components. Producible JSAF components will be provided for the airborne fleet (manned and unmanned) for integration on the Air Force's RC-135V/W (Rivet Joint), the Army's Aerial Common Sensor (ACS) platform, the Air Force's U-2, and the Navy's EP-3E.	s to moderniz brace an oper ture access to find innovati ilities develo developmen essment of th	te the SIGIN a systems at the latest to ive ways to ped for othe it and modif to JSAF con vet Joint), th	AT capability proach, wit schnology a use new tecly a application of the appnication of the appnication of the appnication. It is Army's A	y of the Dol h recognizer s future bud hnologies. I ns. The goa te lead integ Producible J cerial Comm	D airborne re d standards, of get year doll (t will also poul is full compration aircrait SAF componion Sensor (f	connaissanc commonality ars become ermit maxim pliance with ft (EP-3E) ft nents will be	e fleet, throu y, modularity available. T um use of co all CRD req or the initial provided fo m, the Air F	ugh a series of y, scaleabilithe open archommercial-ofuirements and JSAF modul or the airborn or	to modernize the SIGINT capability of the DoD airborne reconnaissance fleet, through a series of incremental race an open systems approach, with recognized standards, commonality, modularity, scaleability, and ure access to the latest technology as future budget year dollars become available. The open architecture will find innovative ways to use new technologies. It will also permit maximum use of commercial-off-the-shelf lities developed for other applications. The goal is full compliance with all CRD requirements and all Joint development and modification of the lead integration aircraft (EP-3E) for the initial JSAF modules will provide a assment of the JSAF components. Producible JSAF components will be provided for the airborne fleet (manned 135V/W (Rivet Joint), the Army's Aerial Common Sensor (ACS) platform, the Air Force's U-2, and the Navy's
93333333	EY 1999 (\$ in Thousands) \$44,866 Cor \$16,908 Cor \$2,190 Cor \$7,830 Cor \$2,040 Cor \$4,239 Cor \$78,073 Tot	Continued Low Band SubSystem (LBSS) development and integration Continued High Band SubSystem (HBSS) development and integration Continued Rivet Joint Platform development and integration Continued EP-3E Platform development and integration Continued U-2 Platform development and integration Continued SPO Operations, Systems Engineering, Program Management Activities Total	em (LBSS) development and i em (HBSS) development and 1 development and integration relopment and integration spment and integration stems Engineering, Program I	evelopment developmen nt and integr d integration ntegration eering, Prog	and integra t and integra ation n	tion ation ement Activ	ities				
223333	EY 2000 (\$ in Thousands) \$33,603 Cor \$20,324 Cor \$7,362 Cor \$15,096 Cor \$7,100 Cor \$1,000 Beg	Continue Low Band SubSystem (LBSS) development and integration Continue High Band SubSystem (HBSS) development Continue Rivet Joint platform development for JSAF integration and testing Continue EP-3 platform development for JSAF integration and testing Continue U-2 platform development for JSAF integration and testing Begin ACS platform development for JSAF integration and testing	n (LBSS) de n (HBSS) de development pment for JS/ ent for JS/ ent for JSAF	velopment a velopment for JSAF in 3AF integrat AF integration integration integration	ind integrati regration ar ion and test on and testing and testing	ing 18					
٩	Project 674817			Page 2	Page 3 of 21 Pages	S			ĒX	hibit R-2A (Exhibit R-2A (PE 0305206F)
					1 1						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFICATION	SHEET (F	3-2A Exh	libit)	Ď.	DATE February 2000	, 2000
80D 07	BUDGET ACTIVITY O7 - Operational System Development	٠	PE NUMBER AND TITLE 0305206F Airbo	AND TITLE : Airborne	e Reconna	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	ystems	PROJECT 674817
9	A. Mission Description Continued							
99999	FY 2000 (\$ in Thousands) Continued \$3,022 Begin Active Interference Cancellation (IC) and Modeling & Simulation (M&S) Efforts \$2,200 Begin Near Term Follow-On-Program (FOP) \$4,589 Continue SPO Operations, Systems Engineering, Program Management Activities \$94,296 Total	cellation (IC) and Mod Program (FOP) stems Engineering, Pro	leling & Simula gram Managem	tion (M&S) E ent Activities	fforts			
99999999999	\$15,854 Continue Low Band SubSystem (LBSS) development and integration \$14,117 Complete High Band SubSystem (HBSS) development and integration \$2,542 Continue Rivet Joint platform development for JSAF integration and testing Continue EP-3 platform development for JSAF integration and testing Continue ACS platform development for JSAF integration and testing Continue ACS platform development for JSAF integration and testing Continue ACS platform development for JSAF integration and testing Continue ACS platform development for JSAF integration and testing Continue ACS platform development (IC) and Modeling & Simulation (M&S) Efforts \$17,400 Begin Follow-On Program (FOP) development Begin JSAF Developmental Support Unit (DSU) development Continue SPO Operations, Systems Engineering, Program Management Activities Total	m (LBSS) developmen em (HBSS) developme t development for JSAF opment for JSAF integrapment for JSAF integrapm	t and integration and and integration and integration and testination and testing ation and testing ation and testing action and action action and action action and action and action and action and action action and action ac	n on d testing ig ulation (M&S)) Efforts			
99	B. Project Change Summary C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	ousands) FY 2000 Extimate Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
<u> </u>	D. Acquisition Strategy The JSAF acquisition strategy The JSAF acquisition approach emphasizes full and open competition for the initial LBSS and HBSS development programs, as well as the FOPs that are planned at three year intervals beginning in 2001. A competitive source selection will be conducted for each new development effort. Estimated production costs will be a criteria for evaluation and determination of best value, thus providing justification for the follow-on sole source production contract. Although logistics support costs will not be a factor in best value determination for the initial HBSS and LBSS efforts due to the unknown variables of reliability, maintainability, mean time between failure, etc., of Project 674817	pen competition for the source selection will b roviding justification fo	r the initial LBSS arill be conducted form for the follow-on s due to the unknov	nd HBSS dever r each new dev sole source pr vn variables ol	elopment prog velopment effc roduction cont f reliability, m	rams, as well a rr. Estimated ract. Although	is the FOPs that are planned at production costs will be a criteria logistics support costs will not t mean time between failure, etc., Exhibit R-2A (PE 0305206F)	e planned at vill be a criteria costs will not be n failure, etc., of F 0305206F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	
90E	BUDGET ACTIVITY 07 - Operational System Development 0305206F Airbo	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT 978417	ЕСТ 817
9	D. Acquisition Strategy Continued newly developed hardware and software, the initial contractor logistics support (CLS) contract will be awarded sole source to the successful developer. This approach ensures the government receives the best value for each JSAF effort, while providing incentive to the winning development contractor. The open architecture will provide competitive opportunities during each development effort to contractors who find innovative ways to use new technologies, while permitting maximum use of commercial-off-the-shelf (COTS) and government-off-the-shelf (GOTS) capabilities developed for other applications. With delivery of the core capability, the requirements community will agree on the next increment to be acquired - which will be competitively procured. The open systems architecture provides a vehicle for exploitation and integration of COTS and GOTS, allowing the government to refresh, upgrade, enhance and evolve its system capabilities. This follow-on, competitive effort is expected to run a 2 year development and 1 year test cycle.	will be awarded sole source to the succ to the winning development contractor wative ways to use new technologies, v d for other applications. With delivery etitively procured. The open systems ar enhance and evolve its system capabili	essful developer. This appronsor The open architecture will thing paraimum use the core capability, the chitecture provides a vehicle ties. This follow-on, compe	ach se of for titive
3	E. Schedule Profile FY 1999	FV 2000	1000 Ad	
29999 999999	Engineering Milestones LBSS System Deliveries RJ LBSS Integration & Flight Test Begins EP-3 LBSS Integration & Flight Test Begins LBSS & HBSS Integration & Flight Test Begins L9-2 LBSS Integration & Flight Test Begins U-2 LBSS Integration & Flight Test Begins High Band Prototype (HBP) flight test complete; OCONUS deployment High Band SubSystem (HBSS) CDR HBSS Factory Acceptance Test (FAT) U-2 HBSS Integration & Flight Test Begins ISAF Production Begins (procurement funds in platform PEs) ISAF Production Begins ISAF Polouchon Program Begins *- Denotes completed event X- Denotes planned event	4 * * * * * * * * * * * * * * * * * * *	× × × 3 × × × × × × × × ×	4
σ.	Project 674817 Pages 5 of 21 Pages		Exhibit R-2A (PE 0305206F))6F)

	RDT&E PROGRAM ELEMENT		I/PROJECT COST BREAKDOWN (R-3)	OST BE	REAKDO!	WN (R-3)		DATE F.	February 2000	8
91 02	вироет астіліту 07 - Operational System Development	opment		PE NUMBER AI 0305206F	• /	ID TITLE Airborne Reconnaissance Systems	naissance	System		PROJECT 674817
(D)	A. Project Cost Breakdown (\$ in Thousands)	housands)				FY 1999	666	FY 2000	00	FY 2001
()	Hardware Development					24.	24.710	20.805	3 ×2	18.843
3	Software Development					18,	18,532	20,693	33	21,273
3	Platform Integration					12,	12,060	30,558	82	19,473
9	Integration and Test Support					6,	6,177	6,935	35	8,510
999	Systems Engineering Program Management Total					12,	12,355 4,239 78,073	10,716 4,589 94,296	96 39 96	12,157 4,865 85,121
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	Planning Informat	ion (\$ in Thousan	ds)						
9	Performing Organizations:									
	Contractor or									
	₩,	Method/Type Award or	Per	Project	Total Brior	Dudget	Dudget	Dudget	Dudget to	Total
	Activity Vehicle		EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations									
	Sanders (LBSS) CPAF	Feb 97	151,300	151,300	0	44,866	33,603	15,854	Continuing	TBD
			54,700	54,700	0	16,908	20,324	14,117	Continuing	TBD
	TBD (FOP, DSU, Active IC; TBD	FY00/01	TBD	TBD	0	0	5,222	30,574	Continuing	TBD
	Martorm Integration (Includes Various	ss Various			0	12.060	30.558	19.711	Continuing	TBD
	AF, Army, Navy)					`	•	`)	
	Support and Management Organizations	suo								
	Various	ss Various			0	4,239	4,589	4,865	Continuing	TBD
	Test and Evaluation Organizations Note: Eunderwrier to EV00 are in DE 0205206D. Airhorne Recommissionne Advanced Development	0305206D Airhorm	Daconionaice	Advanced De	welonment					
	Project 674817		Pag	Page 6 of 21 Pages	ges			Exhit	Exhibit R-3 (PE 0305206F)	305206F)

RDT&E PROGRAM ELEMENT/PROJECT (I/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airborr	итте Airborne Reconnaissance Systems	naissance	Svstems		PROJECT 674817
	Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Product Development	0	73,834	89,707	80,256	TBD	TBD
Subtotal Support and Management	0	4,239	4,589	4,865	TBD	TBD
Subject Total Project	0	78,073	94,296	85,121	TBD	TBD
Project 674817	Page 7 of 21 Pages			Exhibit	Exhibit R-3 (PE 0305206F)	5206F)

RDT&E BUDGET ITEM JU	STIFIC/	ATION 8	STIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305206	PE NUMBER AND TITLE 0305206F Airbol	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	nnaissar	nce Syst	ems	PROJECT 674818
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674818 Advanced Technology	9,826	9,200	2,126	1,085	18,192	29,299	25,568	25,568 Continuing	TBD

Note: Funding for U-2 Advanced Defense Systems transfers to PE 0305202F beginning in FY01.

A. Mission Description 3

There are two primary objectives for the Advanced Technology funding: (1) To evaluate the utility and maturity of technology for airborne reconnaissance applications; and (2) To reduce the risk of employing emerging technologies in system upgrades, or new system acquisitions by integrating and exercising them in developmental and operational tests. These technologies address high priority collection requirements critical to the future of airborne reconnaissance systems. Specific priorities for development include increased geolocation accuracy, advanced sensor data fusion, and high data rate communications. This project also includes funding for U-2 Advanced Defensive Systems development in FY00. Near term development and feasibility demonstrations of specific technologies are conducted, followed by transition into production systems to support operational capabilities.

* FY99 is understated by 55K. BTR not reflected in ABIDES database.

FY 1999 (\$ in Thousands)

2,865 1,561 2,900 2,000 500 3,826	High Data Rate Communications: Completed development of air-to-air lasercomm demonstration terminals. Modeling and Simulation: Developed software process model of Tactical Intelligence ground systems. SYERS P3I: Completed development and flight test of SYERS P3I sensor systems. Moving Target Exploitation (MTE): Begin Phase 1 development of automatic target recognition and imaging capability. Geolocation: Continued development of capability to coregister airborne imagery with national data bases. Total
	\$2,865 \$1,561 \$2,900 \$2,000 \$500 \$9,826

FY 2000 (\$ in Thousands)

9	\$100	Sensor Fusion: A LACCS (Airborne Largeting and Cross Cueing System) risk reduction activities to integrate U-2 IMINI/ELINI/MASINI
		collection systems
9	\$400	Geolocation: Continue development of coregistration of imagery in national data bases and application of advanced exploitation tools.
9	(U) \$100	High Data Rate Communications: Continue evaluation of air-to-air lasercomm system
9	\$8,600	Advanced Defensive System: Initiate development of U-2 Defensive Systems and conduct risk reduction project
9	\$9.200	Total

Project 674818

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Exhibit R-2A (PE 0305206F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ICATION	SHEET (1	3-2A Exh	libit)	·α	DATE February 2000	7 2000
BUE 07	вирсет астилту 07 - Operational System Development		PE NUMBER AND TITLE 0305206F Airbo	AND TITLE	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	issance S	ystems	PROJECT 674818
<u>(2)</u>	A. Mission Description Continued							
55555	FY 2001 (\$ in Thousands) \$145 Sensor Fusion: Continue analysis of ATACCS airborne processing, communication links and ground processing components and interfaces \$1,500 Geolocation: Continue development and begin transition of enhanced geolocation capability to ground systems. \$481 High Data Rate Communications: Complete air-to-air lasercomm evaluation \$2,126 Total	VTACCS airbon nd begin transi nplete air-to-ai	rne processing, ition of enhance ir lasercomm ev	communicatic d geolocation aluation	on links and gr capability to g	ound processir ground systems	ig components and	interfaces
9	B. Project Change Summary							
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
9		17,616	16,443	6,285	0	0		
9	D. Acquisition Strategy The program targets high payoff technologies to satisfy critical unmet airborne reconnaissance collection requirements. Funds are provided to begin development and insertion of these technologies, and to reduce risk associated with their implementation in production systems. Emphasis is placed on maximizing commercial and national development efforts and investment. Funds are provided to various government laboratories and program offices to conduct these technology development efforts. Multiple contracting methods are used including the use of Engineering Change Proposals (ECPs) to modify existing contracts. Contracts have been awarded both competitively and on a sole source basis.	of unmet airbon with their imple ded to various use of Engineer	ne reconnaissa mentation in p government lal ing Change Pro	nce collection roduction systematories and posals (ECPs)	requirements. ems. Emphasi program offico) to modify exi	Funds are prosis is placed on a set to conduct the set is conduct the set is contracts.	critical unmet airborne reconnaissance collection requirements. Funds are provided to begin development and iated with their implementation in production systems. Emphasis is placed on maximizing commercial and provided to various government laboratories and program offices to conduct these technology development githe use of Engineering Change Proposals (ECPs) to modify existing contracts. Contracts have been awarded	elopment and ercial and evelopment oeen awarded
<u> </u>	E. Schedule Profile	1	EY 1999 2 3	4	EY 2000	3 4	1 EX	FY 2001
333	Sensor Fusion - ATACCS Phase I Contract Award - ATACCS Risk Reduction Demos				×			×
<u> </u>	Moving Target Exploitation (MTE) - Begin Phase I MTE development Modeling and Simulation		*					
<u> </u>	- Report Tactical GS simulation results		*					
	Project 674818	Pag	Page 9 of 21 Pages				Exhibit R-2A (PE 0305206F)	E 0305206F)
			1461					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ON SHEET (R-2A Exhib	oit)	DATE Febru	February 2000
вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	Reconnaissance	Systems	РРОЈЕСТ 674818
(U) E. Schedule Profile Continued	FY 1999	EY 2000	-	EY 2001
 (U) Geolocation (U) - Prototype deployed to support Operation Allied Force (U) - Test Readiness Review (U) - Factory Acceptance Test (U) - Flight Test SYERS S/N 7 (U) - Flight Test SYERS S/N 8 (U) - Flight Lab Test SYERS S/N 8 (U) - Laser Terminal Lab Test (U) -Laser Terminal Lab Test (U) -Laser Terminal Lab Test (U) -Laser Terminal Lab Test (U) -ADS Phase 2 contract award *-Denotes completed event *-Denotes planned event *-Denotes planned event)	· × ××	•	· ×
Project 674818	Page 10 of 21 Pages		Exhibit R-2/	Exhibit R-2A (PE 0305206F)
	277			

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Participate	BUD 07 .	обет АСТІVІТУ - Operational System De	velopme	nt		PE NUMBE 030520		ne Reconi	naissance	Systems		PROJECT 674818	
Activity Activity	(5)		in Thousand	(SI				7.7	000	70c 2d	ç	EV 2001	
Systems Engineering Support 400 Countactor Engineering Support 1,611 Government Engineering Support 2,826 Total 2,826 Budget Acquisition History and Planning Information (S in Thousands) Performing Countactor or Countact Countactor of Countactor or	9	Hardware and Software Develop	oment					7,	231	7,234	31 ↔	1,581	
Contractor Engineering Support Government Engineering Support Exadet Acquisition History and Planning Information (S in Thousands) Exadet Acquisition History and Planning Information (S in Thousands) Performing Organizations Performing Organizations Performing Organizations Performing Organizations Performing Date (S in Plance) Performing Date (S in	3	Systems Engineering						. *	400	140	0	295	
E. Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contract Performing Organizations: Contract Contrac	99	Contractor Engineering Support Government Engineering Suppor	. =					., 1,	611 584	900	2, 2	150	
Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contract Performing Government Performing Government Performing Government Performing Government Performing Government Project (S in F v 1999) Pr	9	Total						6	826	9,200	0	2,126	
Contract Contract Contract Contract Contractor or Contract Contractor or Contractor or Contractor or Contractor or Contractor or Contractor or Cativity Contractor or Cativity Cativity <th colspan<="" td=""><td>3</td><td>B. Budget Acquisition History</td><td>and Plannin</td><td>gInformation</td><td>ı (\$ in Thousand</td><td>প্ত</td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td>3</td> <td>B. Budget Acquisition History</td> <td>and Plannin</td> <td>gInformation</td> <td>ı (\$ in Thousand</td> <td>প্ত</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	3	B. Budget Acquisition History	and Plannin	gInformation	ı (\$ in Thousand	প্ত						
rictor of minent Contract ment Avard or Method/Type of Funding Performing Obligation Project Activity Project Activity Project Activity Performing Obligation Performing Obligation Performing Activity Performation Subject Activity Performa	3												
method/Type Award or Euroming Performing Doligation Performing Activity Office Activity Police Activity Project Project<		L ug											
Part			21	Award or	Performing	Project		Ċ.	ć	,	ָר	E	
ech Martin Skunkvorks Various ongoing TBD TBD TBD 1,500 end Martin Skunkvorks Various ongoing TBD TBD 1,555 380 end Martin Skunkvorks Various ongoing TBD TBD 475 380 mi Information Systems FPLOE 18 Nov 96 TBD TBD 475 380 an CPFF 9 Aug 96 TBD TBD 445 50 an CPFF 9 Aug 96 TBD TBD 445 50 naterprises CPFF 9 Aug 96 TBD TBD 445 50 st Contr TBD TBD TBD TBD 79 79 Ast Contr TBD TBD TBD 7,849 8,170 79 Gov't Orgs Multiple TBD TBD TBD TAD 7,849 8,729 al Support and Management Ang Suport and Evaluation Ang Suport and Evaluation <td></td> <td><u>ans</u></td> <td><u> </u></td> <td>Optigation Date</td> <td>EAC</td> <td>EAC</td> <td>to FY 1999</td> <td>FY 1999</td> <td>FY 2000</td> <td>FY 2001</td> <td>Complete</td> <td><u>10tal</u> Program</td>		<u>ans</u>	<u> </u>	Optigation Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	<u>10tal</u> Program	
con Various ongoing TBD TBD 1,500 eed Martin Skunkworks Various ongoing TBD TBD 1,255 380 ini Information Systems FPLOE 18 Nov 96 TBD TBD 475 380 interprises CPFF 9 Aug 96 TBD TBD 1,920 50 an CPFF 9 Aug 96 TBD TBD 0 445 50 not CPFF 9 Aug 96 TBD TBD TBD 0 445 50 not CPFF 9 Aug 96 TBD TBD TBD 0 8,170 79 nt and Management Organizations Multiple TBD TBD TBD 1,977 471 all Product Development all Product Development Tall Product Development 1,977 471 all Support and Management all Support and Wanagement 0 9,826 9,200		Development Organiz	suoi										
eed Martin Skunkworks Various ongoing TBD TBD TBD 475 380 an Information Systems FPLOE 18 Nov 96 TBD TBD TBD 6 445 50 an CPFF 9 Aug 96 TBD TBD TBD 6 445 50 an CPFF 9 Aug 96 TBD TBD 0 445 50 an CPFF 9 Aug 96 TBD TBD 0 8,170 79 an CPFF 9 Aug 96 TBD TBD TBD 0 8,170 Act Contr TBD TBD TBD TBD 79 79 Act and Management Organizations Multiple TBD TBD 1,977 471 Act als Product Development An Brigget An Brigget Budget Budget Budget Brigget all Product Development An Brigget An Brigget An Brigget An Brigget An Brigget An Brigget all Support and Management An Brigget An Brigget An			arions	ongoing	TBD	TBD	0	1,500			0	1,500	
mi Information Systems FPLOE 18 Nov 96 TBD TBD TBD 380 anterprises CPFF 9 Aug 96 TBD TBD 445 50 an CPFF 9 Aug 96 TBD TBD 445 50 yst Contr TBD TBD TBD 0 8,170 79 trand Management Organizations Multiple TBD TBD 1,977 471 ad Evaluation Organizations Multiple TBD TBD 1,977 471 ad Evaluation Organizations Tals TO421Prior Budget EV 1999 EV 2009 EV 2009 all Product Development all Product Development 1,977 471 471 all Test and Evaluation 1,977 471 471 Project 9,826 9,200 9,200		Lockheed Martin Skunkworks Va	arious	ongoing	TBD	TBD	0	1,255			0	1,255	
control		Marconi Information Systems FF	PLOE	18 Nov 96	TBD	TBD	0	475	380	1,425	Continuing	TBD	
an CPFF 9 Aug 96 TBD TBD TBD 0 445 50 st Contr TBD TBD TBD TBD 0 0 8,170 tt and Management Organizations Govt Organizations Multiple TBD TBD TBD 471 471 als Evaluation Organizations August Evaluation Evaluation Budget Budget FV 2000 FV all Product Development all Product Development And 1 And 2 And 3 And 3 all Support and Management And 3 And 3 And 3 And 3 And 3 Project Project And 3 And 3 And 3 And 3			PFF	9 Aug 96	TBD	TBD	0	1,920	50	100	0	2,070	
vst Contr TBD T			PFF	9 Aug 96	TBD	TBD	0	445	50	356	0	851	
TBD TBD TBD TBD TBD TBD TPD TPD <td></td> <td>yst Contr</td> <td>ВD</td> <td>TBD</td> <td>TBD</td> <td>TBD</td> <td>0</td> <td>0</td> <td>8,170</td> <td>0</td> <td>0</td> <td>8,170</td>		yst Contr	ВD	TBD	TBD	TBD	0	0	8,170	0	0	8,170	
Multiple TBD TBD 0 1,977 471 Total Prior Budget bud		Other	ВД	TBD	TBD	TBD	0	2,254	79	138	Continuing	TBD	
Multiple Multiple TBD TBD 0 1,977 471 on Organizations Evaluation Total Prior and Multiple budget bud		Support and Management Organ	izations										
lustion Organizations Total Prior Budget budget budget Expression Expression <td></td> <td></td> <td>lultiple</td> <td>Multiple</td> <td>TBD</td> <td>TBD</td> <td>0</td> <td>1,977</td> <td>471</td> <td>107</td> <td>Continuing</td> <td>TBD</td>			lultiple	Multiple	TBD	TBD	0	1,977	471	107	Continuing	TBD	
Total Prior Budget Bu		Test and Evaluation Organization	us										
to FY 1999 FY 2000 FY luct Development 0 7,849 8,729 cort and Management 0 1,977 471 and Evaluation 0 9,826 9,200							Total Prior	Budget	Budget	Budget	Budget to	Total	
luct Development 0 7,849 8,729 port and Management 0 1,977 471 and Evaluation 0 9,826 9,200		Subtotals					to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program	
oort and Management 0 1,977 471 and Evaluation 0 9,826 9,200		Subtotal Product Development					0	7,849	8,729	2,019	TBD	TBD	
and Evaluation 0 9,826 9,200		Subtotal Support and Manageme.	'nt				0	1,977	471	107	TBD	TBD	
		Subject Total Project					0	9,826	9,200	2,126	TBD	TBD	
Project 674818 Page 11 of 21 Pages Exh	α.	² roject 674818			Page	11 of 21 Pag	Se.			Exhib	Exhibit R-3 (PE 0305206F)	05206F)	

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC,	ATION &	SHEET (R-2A E	xhibit)		DATE	February 2000	y 2000
BUD(BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AN 0305206F		IDTITLE Airborne Reconnaissance Systems	nnaissa	nce Syst	ems	PROJECT 674819
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674819	(19 Common Data Link (CDL)	35,639	32,725	44,799	38,506	46,118	47,047	47,974	Continuing	TBD
5	A. Mission Description The objective of the CDL effort within the Air Force is to define an interoperable command, control and communications paths by employing an architecture based on developed assets to include both manned and unmanned platforms. CDL will achieve interoperable communications paths by employing an architecture based on developed hardware, software, and waveforms to promote commonality among the Services. The CDL program will maintain design configuration commonality resulting in lower life-cycle costs. The CDL design will permit existing and future reconnaissance assets to operate worldwide, providing sensor data directly to ground sites or via satellite or air-to-air relay when the asset and ground site are not within line-of-sight. This effort will integrate commercial satellite communications into the available satellite relay options to ensure sufficient wideband data relay capability. The system will have sufficient bandwidth to accommodate numerous sensors collecting SIGINT, IMINT (including video), Multi-spectral and other data. Modular design allows for future technology insertion. The commonality of modular components reduces non-recurring engineering and life cycle costs to the DoD user. Interoperability provides for the exchange of data across service or agency boundaries.	is to define ms. CDL winonality am g and future site are not lata relay cal dother data.	an interoper ill achieve ir ong the Serv reconnaissa within line-c pability. The Modular de	able comma nteroperable ices. The C nce assets to nf-sight. Thi e system wil esign allows	nd, control a communicat DL program operate wor s effort will I have suffic for future te rovides for t	nd communions paths by will maintal dwide, provintegrate collient bandwide, chnology in the exchange	ications caps y employing in design co riding senso mmercial sa dth to accom sertion. The	ability for in a architect of the figuration of the filte communodate nun e commonality oss service of	s to define an interoperable command, control and communications capability for intelligence and reconnais. CDL will achieve interoperable communications paths by employing an architecture based on developed on all the Services. The CDL program will maintain design configuration commonality resulting it and future reconnaissance assets to operate worldwide, providing sensor data directly to ground sites or via it are not within line-of-sight. This effort will integrate commercial satellite communications into the avaita relay capability. The system will have sufficient bandwidth to accommodate numerous sensors collecting other data. Modular design allows for future technology insertion. The commonality of modular component to the DoD user. Interoperability provides for the exchange of data across service or agency boundaries.	s to define an interoperable command, control and communications capability for intelligence and reconnaissance is. CDL will achieve interoperable communications paths by employing an architecture based on developed onality among the Services. The CDL program will maintain design configuration commonality resulting in lower and future reconnaissance assets to operate worldwide, providing sensor data directly to ground sites or via ite are not within line-of-sight. This effort will integrate commercial satellite communications into the available ta relay capability. The system will have sufficient bandwidth to accommodate numerous sensors collecting other data. Modular design allows for future technology insertion. The commonality of modular components to the DoD user. Interoperability provides for the exchange of data across service or agency boundaries.
33333	\$3,317 Continued configuration control of CDL architecture, specifications and modules. \$4,045 Continued development of CDL and Tactical Common Data Link (TCDL) interface to additional platform \$4,045 Continued to assess development of commercial network interface standards and impact to CDL interface. \$3,140 Continued engineering and integration of commercial satellite communication network to support airborne requirements.	rol of CDL a JL and Tacti tent of comr tegration of	rchitecture, cal Commor rercial netwo	of CDL architecture, specifications and modules. L and Tactical Common Data Link (TCDL) interface to additional platforms. Interface of commercial network interface standards and impact to CDL interface. Stration of commercial satellite communication network to support airborne research.	is and modul (TCDL) inte standards ar imunication	les. rface to add: nd impact to network to s	itional platfe CDL interfa support airbo	orms. ace. orne reconna	of CDL architecture, specifications and modules. L and Tactical Common Data Link (TCDL) interface to additional platforms. Int of commercial network interface standards and impact to CDL interface. Stration of commercial satellite communication network to support airborne reconnaisance platform relay	rm relay
5555555	\$5,995 Completed covert waveform development/miniaturization/air-to-air link under the ABIT program. \$5,995 Continued SATCOM interoperability enhancements. \$5,325 Completed Tactical CDL flight demonstration. \$1,005 Began development of Dual Data Link II (DDL-2) for the U-2 \$35,639 Total	ation suppor development crability enb: ht demonstra and bulk enc Data Link II (tion support of airborne reconnate velopment/miniaturization/airability enhancements. t demonstration. nd bulk encryption on all CDL ata Link II (DDL-2) for the U-2	reconnaissa tion/air-to-a ill CDL syst the U-2	nce platforn ir link under ems.	requiremer the ABIT pi	its into Natic rogram.	onal Space C	Sommunicati c	ons Program.
Щ	Project 674819		Page	Page 12 of 21 Pages	š			Û	chibit R-2A (Exhibit R-2A (PE 0305206F)
				1464						

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	2000
BUDG 07 -	BUDGET ACTIVITY 07 - Operational Sv	BUDGET ACTIVITY 17 - Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	Systems	PROJECT 674819
E	A. Mission Description Continued	ion Continued			
99	FY 2000 (\$ in Thousands) \$12,050 Cor	ntinue engineering/ integratio	n of commercial satellite communication network to support airborne reconnaissance platform relay	ussance platform rela	λí
<u>(C</u>	\$2,500	requirements and studies and analysis of alternative satellite communications to support airbor Continue development of Tactical CDL demonstration hardware and flight demonstration and suitability on Intelligence. Surveillance & Reconnaissance (ISR) platforms including Predator	requirements and studies and analysis of alternative satellite communications to support airborne reconnaissance relay requirements. Continue development of Tactical CDL demonstration hardware and flight demonstration and continue to develop design for operational suitability on Intelligence. Surveillance & Reconnaissance (ISR) platforms including Predator.	nce relay requirement elop design for opera	s tional
99	\$4,000 \$2,300	Continue integration engineering of ABIT in ISR platforms including RC-135and Global Hawk. Continue to assess development of commercial network interface standards and incorporation of CDL interface including Assochronous Transfer Mode (ATM) on TCDL	g of ABIT in ISR platforms including RC-135and Global Hawk. of commercial network interface standards and incorporation of commercial technologies where practical to the	technologies where pr	ractical to the
555	\$2,645 \$2,000 \$530	Continue configuration control of CDL architecture, specifications, and modules. Continue development of link modifications to incorporate wideband bulk encryption. Continue SATCOM interoperability enhancements.	specifications, and modules.		
9339	\$2,500 \$4,200 \$32,725	Continue development of CDL and TCDL interface to additional development of Dual Data link upgrade for U-2. Total	Continue development of CDL and TCDL interface to additional platforms including Airborne Reconnaissance Low (ARL). Continue development of Dual Data link upgrade for U-2. Total	ce Low (ARL).	
99	EY 2001 (\$ in Thousands) \$17,728 Cor req	ands) Continue engineering and integration of commercial s requirements and lease one additional transponder to s	ids) Continue engineering and integration of commercial satellite communication network to support airborne reconnaissance platform relay requirements and lease one additional transponder to support Predator and Global Hawk and studies/analysis of alternative satellite	mnaissance platform	relay
<u>(</u>	\$4,000	communications to support airborne reconnaissance relay requirements. Continue development of Tactical CDL demonstration hardware and fli suitability on ISR platforms including potential flight demonstrations o	communications to support airborne reconnaissance relay requirements. Continue development of Tactical CDL demonstration hardware and flight demonstration, and continue to develop design for operational suitability on ISR platforms including potential flight demonstrations on ARL, GUARDRAIL Legacy Replacement, P-3, EP-3, F/A-18 SHARP,	velop design for operz ement, P-3, EP-3, F//	ational A-18 SHARP,
99	\$5,129 \$4,164	VTUAV and Light Airborne Multi-Purpose System (LAMPS) and ATM interface upgrade. Continue ABIT integration engineering of ABIT in ISR platforms including RC-135 and Global Hawk. Continue to assess development of commercial network interface standards and incorporation of comm CDL interface including ungraded 11.2 sensors and Globaal Hawk SAR	VTUAV and Light Airborne Multi-Purpose System (LAMPS) and ATM interface upgrade. Continue ABIT integration engineering of ABIT in ISR platforms including RC-135 and Global Hawk. Continue to assess development of commercial network interface standards and incorporation of commercial technologies where practical to the CDL interface including ungraded 11-2 sensors and Globaal Hawk SAR	echnologies where pr	ractical to the
9999	\$3,549 \$1,310 \$1,500 \$5,419	Continue configuration control of CDL architecture, specifications, and modules. Continue development of link modifications to incorporate wideband bulk encryption. Continue SATCOM interoperability enhancements. Continue development of CDL interface to additional platform and surface terminal ectechnology insertion activities	Continue configuration control of CDL architecture, specifications, and modules. Continue development of link modifications to incorporate wideband bulk encryption. Continue SATCOM interoperability enhancements. Continue development of CDL interface to additional platform and surface terminal equipment (eg JSTARS, TARS, CHBDL) and advanced technology insertion activities	FARS, CHBDL) and	advanced
	Project 674819		Page 13 of 21 Pages	Exhibit R-2A (PE 0305206F)	: 0305206F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R	-2A Exh	ibit)	DA	DATE February 2000	2000
97 04	вирсет аститу 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airbo	AND TITLE Airborne	Reconna	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	stems	PROJECT 674819
3	A. Mission Description Continued						
999	FY 2001 (\$\\$\) in Thousands) Continued \$2,000 Continue development of DDL-2. \$44,799 Total						
<u>e</u>	B. Project Change Summary None.						
<u> </u>	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 FY 2001 Actual Estimate Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	Cost to	Total Cost
9	None						
ව	D. Acquisition Strategy The CDL involves a multitude of technology projects which will provide for a common, interoperable wideband data link standard that has been mandated by ASD/C3I policy. Program funds are leveraged with the Service program funds to satisfy project objectives. Funds are provided to various government laboratories and program offices to fund on-going technology efforts. The individual Services use Engineering Change Proposals (ECPs) and modify existing contracts that have been awarded both competitively and on a sole source basis to implement various technology efforts.	a common, inte fy project object gineering Chang gy efforts.	roperable wid tives. Funds e e Proposals (E	leband data lin ure provided to 3CPs) and moo	k standard that various gover dify existing co	has been mandatec nment laboratories ntracts that have be	d by ASD/C31 and program een awarded
9	E. Schedule Profile						
		FY 1999 2 3	4	EX 2000 1 2 3	2000 3 4	EY 2001	2001 3 4
9	Continue Commercial Satellite Transponder Leases			×		×	
<u>e</u> e	Complete Phase 2 Tactical CDL Flight Demo on Predator Phase 2a Tactical CDL Dev Program Complete on Predator		*		*		
3	Begin TCDL modification for ARL	*			•		
3	Field TCDL on ARL			×			
<u>e</u>	Initial ABIT U-2 Testing Complete						
<u> </u>	Complete ABIT RC-135 Design Initial RC-135 ABIT unit delivery			×			
<u>E</u>	ABIT RC-135 Flight test					×	
<u> </u>	CDL/TARS Pod Integration Study		×				
	Project 674819 Page	Page 14 of 21 Pages				Exhibit R-2A (PE 0305206F)	= 0305206F)

ibit) DATE February 2000	PROJECT 0305206F Airborne Reconnaissance Systems 674819	EX 200 2 X	
RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)			
RDT&E BUDGET ITEM	BUDGET ACTIVITY 07 - Operational System Development	(U) E. Schedule Profile Continued (U) ABIT Global Hawk Devel Study (U) Begin U-2 DDL 2 Development (U) U-2 DDL (U-2 Flight Test) (U) Begin TIGDL interface upgrade *-Denotes completed event X-Denotes planned event	

	RDT&E PROGRAM ELEMEN	SAM ELE		I/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE F .	February 2000	000
80E 07	вирсет астилту 07 - Operational System Development	evelopmer	ıt		PE NUMB 030520	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	ne Reconr	naissance	System		РRОЈЕСТ 674819
9	A. Project Cost Breakdown (\$ in Thousands)	<u>S in Thousand</u>	(3)								
(I)	Hardware and Software Develonment	nment					FY 1999 14 211	<u> </u>	FY 2000	3 E	13 408
3		opinome.					, 4 , 4	4.567	3,237	37	4,771
3							`&	8,501	12,050	20	17,728
3							4,(4,090	3,427	27	4,540
99	Contractor Engineering Support Government Engineering Support	t to					,Ę, ~	3,451 819	1,930	,930 598	3,321
<u>E</u>							35,639	639	32,725	25	44,799
9	B. Budget Acquisition History and Planning Inform	y and Plannin	g Information	ation (\$ in Thousands)	ଜ						
9	Performing Organizations:										
	Contractor or	Contract									
	₩.	<u>a</u>	Award or	Performing	Project		,	,	,	,	
	gui	an In	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	<u>Program</u>
	Development Organiz	tions	1 . 71 . 9 .			c					i i
		Munpie	Munipie	Ė	Ę	> 0	14,405	10,727	117,51	Continuing	IBD
	Aicrowave	CPFF	Mar 99	TBD	TBD	0 (2,000	1,250	200	Continuing	TBD
	Harris Corp C	Other	23 Jul 97	TBD	TBD	0	3,425	1,770	1,900	Continuing	TBD
		Transaction	1 . 71 3 4	í E	į	c	•	0	•		Ç
	ola	Multiple	Multiple	18D	IBD	-	1,005	2,000	1,510	Continuing	UBI Cut
	Outer Support and Management Organizations	viumpie nizations	iviuidpie			>	740	/40	1,049	Commung	180
	COMSAT RSI F	FFP	17 Jul 95			0	8,501	12,050	17,728	Continuing	TBD
	Various	Multiple	Multiple			0	5,429	3,995	6,253	Continuing	TBD
	Test and Evaluation Organizations	suo									
	JITC	MIPR	FY99			0	232	185	248	Continuing	TBD
	Project 674819			Page	Page 16 of 21 Pages	ges			Exhit	Exhibit R-3 (PE 0305206F)	305206F)

RDT&E PROGRAM ELEMENT/PROJECT (T/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	S S
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT
u/ - Operational System Development	USUSZUBE AIRBORE	Airborne Reconnaissance Systems	laissance	Systems		6/4819
Subtotals	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
Subtotal Product Development	0	21.477	16.495	20.570	TBD	TBD
Subtotal Support and Management	0	13,930	16,045	23,981	TBD	TBD
Subtotal Test and Evaluation	0	232	185	248	TBD	TBD
Total Project	0	35,639	32,725	44,799	TBD	TBD
Project 674819 Pag	Page 17 of 21 Pages			Exhibil	Exhibit R-3 (PE 0305206F)	35206F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC,	ATION S	ЗНЕЕТ (R-2A E	xhibit)		DATE	February 2000	y 2000
8UD(BUDGET ACTIVITY 07 - Operational System Development			PE NUMBEF 0305206	PE NUMBER AND TITLE 0305206F Airbol	rne Reco	nnaissa	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	ems	PROJECT 674882
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674882	82 Compass Bright	0	0	4,867	4,860	4,862	5,041	5,223	0	0
9	A. Mission Description The COMPASS BRIGHT program develops advanced Air Force specific SIGINT capabilities to ensure that time-sensitive SIGINT collections against emerging and future target signals occur and reach the battle execution management centers fast enough to be of immediate value in the conduct of military operations.	ed Air Force tion manager	specific SIG	INT capabil fast enough	ities to ensu to be of imn	re that time- nediate valu	sensitive SI e in the con	GINT collec	ctions against lary operation	emerging and S.
	Note: Funding in FY99 and FY00 are in National Security Agency PE 0305206G. FY01-05 funding was transferred to Air Force (PE 0305206F) from PE 0305206G.	curity Agen	cy PE 03052	.06G. FY01	-05 funding	was transfer	red to Air F	orce (PE 03)	05206F) from	PE 0305206G.
999	EY 1999 (\$ in Thousands) \$0 No Activity \$0 Total									
999	FY 2000 (\$\mathbb{S}\$ in Thousands) \$0 No Activity \$0 Total									
9999	FY 2001 (\$\secondarrow{\mathbb{S}}\$ in Thousands) \$4,689 Continue COMPASS BRIGHT (NexGen Receive \$178 SPO operations, Program Management Activities \$4,867 Total	T (NexGen F	(NexGen Receiver, Active Interference Cancellation, other projects) development projects igement Activities	tive Interfer	ence Cancell	ation, other	projects) de	velopment <u>r</u>	projects	
3	B. Project Change Summary									
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000		EY 2001	EY 2002	EY 2003	FY 2004	7	EY 2005	Cost to	Total Cost
99				Estimate	Estillian					
Д.	Project 674882		Page 1	Page 18 of 21 Pages	Se			Щ	chibit R-2A (I	Exhibit R-2A (PE 0305206F)
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	RDT&E BUDGET ITEM JUSTIFICATION	TIFICATION SHEET (R-2A Exhibit)	February 2000
8UD 07	вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airborne Reconnaissance Systems	PROJECT 674882
(2)	D. Acquisition Strategy The COMPASS BRIGHT program objective is to develop technologies for application in SIGINT systems/subsystems. Acquisition and production of these developed technologies will occur within the appropriate platform programs. On-going COMPASS BRIGHT technology development and demonstration contracts will continue through existing laboratory relationships and other existing contractual vehicles. The acquisition approach for future development projects will emphasize full and open competition.	oplication in SIGINT systems/subsystems. Acquisition and production o COMPASS BRIGHT technology development and demonstration contres. The acquisition approach for future development projects will emph	these developed cts will continue size full and open
9	E. Schedule Profile	FY 1999 FY 2000 F	FY 2001 2 3 4
555555	NextGen Receiver -Digital Receiver Dev Complete -LRM Dev Complete - Integr & Test Complete -Receiver Delivery Active Interference Cancellation - Complete Prototype Testing	* *	× ×
1 —1—	Project 674882	Page 19 of 21 Pages	Exhibit R-2A (PE 0305206F)
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	RDT&E PROGRAM ELEMENT		/PROJECT C	OST BI	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	80
6 0	вирсет астилту 07 - Operational System Development	ment		PE NUMBER AN 0305206F		ID TITLE Airborne Reconnaissance Systems	naissance	Systems		PROJECT 674882
9) A. Project Cost Breakdown (\$ in Thousands)	sands)				FV 1000	000	EV 2000	9	EV 2001
55		Activities					00		300	4,689
≘							0		0	4,867
<u> </u>) B. Budget Acquisition History and Planning Information (\$ in Thousands)	nning Informatic	on (\$ in Thousan	ds)						
9	Performing Organizations: Contractor or									
		ype Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity		EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations Various	Varions	TBD	TBD	0	0	0	4,689	Continuing	TBD
	and Management Orga	•	!		•		•	,		
	Various Various Test and Evaluation Organizations	Various	TBD	TBD	0	0	0	178	Continuing	TBD
	None									
3	Government Furnished Property: Contract									
	Method/Type	81								
	Item <u>or Funding</u> Description Vehicle	g <u>Obligation</u> Date	<u>Delivery</u> Date		Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
	velopment Property							10077		
	Support and Management Property									
	None									
	Test and Evaluation Property None									
	Project 674882		Pag	Page 20 of 21 Pages	iges			Exhib	Exhibit R-3 (PE 0305206F)	305206F)

Project G74822 Project Activity Project Activ	RDT&E PROGRAM ELEMENT/PROJECT	ECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
Total Prior Budget Budget Budget Budget Budget CV 2000 FY 2001 Complete CV 2001 Complete CV 2001 CV 2001 COmplete CV 2001 CV	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305206F Airbori	ne Reconr	naissance	Systems	ă 9	юјест 7 4882
of Development	0.1144412	Total Prior	Budget FV 1000	Budget FV 2000	Budget FV 2001		Total Program
nd Evaluation	Subtotal Product Develorment	0	0	0	4.689	TBD	TBD
nd Evaluation 0 0 4,867 TBD 0 0 0 0 9 4,867 TBD Page 21 of 21 Pages Exhibit R-3 (PE 030620)	Subtotal Support and Management	0	0	0	178	TBD	TBD
0 0 0 4,30/ 1BD	Subtotal Test and Evaluation	c	c	c		ģ	Ė
Page 21 of 21 Pages	Total Project	0	0	0	4,867	IBD	IBU
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	Project 674882	Page 21 of 21 Pages			EXUIDI	T K-3 (PE U3)	JOSTOP)

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PE NUMBER: 0305207F PE TITLE: Manned Reconnaissance System

1										
	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUD(07 -	BUDGET ACTIVITY O7 - Operational System Development			PE NUMBER AND TITLE 0305207F Mann	AND TITLE	ed Recor	naissan	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	m	
·	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	53,479	23,798	0	0	0	0	8,693	Continuing	TBD
674754	54 COBRA BALL	5,950	11,363	0	0	0	0	8,693	Continuing	TBD
674820	20 Manned Reconnaissance Systems U-2	47,529	12,435	0	0	0	0	0	Continuing	GBT
	Quantity of RDT&E Articles	1	0	0	0	0	0	0	0	0
Fundi FY01	Funding for FY99-05 transferred to Air Force PE 0305207F FY01.	from DAR) Divestitur	e PE 030520	7D. Fundir	g for projec	t 674820 in	FY01-05 Tr	ansferred to	from DARO Divestiture PE 0305207D. Funding for project 674820 in FY01-05 Transferred to PE 0305202F in
9	A. Mission Description The RDT&E portion of this PE supports development PE focus on sensor and safety of flight projects.	efforts requ	ired to enha	nce and sust	ain the U-2	and RC-135	reconnaissa	ınce aircraft.	The RDT&	efforts required to enhance and sustain the U-2 and RC-135 reconnaissance aircraft. The RDT&E efforts in this
9	B. Budget Activity Justification The program is categorized as Budget Activity 7 because it provided for development of technologies and capabilities in support of operational system development	use it provic	led for deve	lopment of t	echnologies	and capabil	ities in supp	ort of operat	ional system	ı development
3	C. Program Change Summary (\$ in Thousands)				3				•	
<u> </u>	Previous President's Budget (FY 2000 PBR)				FY 1999 44,241	•	FY <u>2000</u> 9,388	FY 2001	a •	Total Cost TBD
99	Appropriated Value				44,366		24,388			
9	Adjustments to Appropriated Value a. Congressional/General Reductions				-125					
	b. Small Business Innovative Research									

Page 1 of 12 Pages

TBD

-130

9,537

c. Omnibus or Other Above Threshold Reprogram

d. Below Threshold Reprogram

e. Rescissions f. Other

Adjustments to Budget Years Since FY 2000 PBR

3

460

-299

Exhibit R-2 (PE 0305207F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	N SHEET (R-2 Exhibit	£)	DATE February 2000	000
BUDC 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	sconnaissance	System	
9	C. Program Change Summary (\$ in Thousands) Continued	0001 XI	0000 233	1000 733	Į.
<u>(a)</u>	Current Budget Submit/FY 2001 PBR	53,479	23,798	0	TBD TBD
9	Significant Program Changes: FY99: DD1415 New Start notification for U2 Defensive Systems QRC approved by Congress. Funds reprogrammed from other AF sources to support this new start. FY01: U-2 Electronic Warfare System (EWS) reprogramming from RDT & E to Procurement (\$4.595M).	oproved by Congress. Funds reprogr & E to Procurement (\$4.595M).	rammed from other	AF sources to support this 1	new start.
	a .	Page 2 of 12 Pages		Exhibit R-2 (PE 0305207F)	305207F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JSTIFIC,	ATION S	знеет ((R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDK 07-	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER 0305207	PE NUMBER AND TITLE 0305207F Mann	ed Recor	naissan	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	 	PROJECT 674754
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674754	54 COBRA BALL	5,950	11,363	0	0	0	0	8,693	0	30,801
5	A. Mission Description Laser Ranging and Imaging System (LRIS) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with modifications to the RC-135 or its mission systems. The results of these efforts provide the requisite engineering necessary to implement modifications or provide a preliminary assessment of the technical feasibility, operability, or general military utility of an application. FY99 funds (Congressional plus-up) continues the Laser Ranging and Imaging system for the COBRA Ball platform and includes system testing in Maui. This project has been called the Field Laser Demonstration (FLD) and the Advanced Airborne Sensor (AAS) in past budget documentation. FY05 funds air traffic control and navigational safety non-recurring engineering for the RC-135 fleet. Multi-Function Self-Aligned Gate Technology (MSAG) Congress supports the development of the multi-function self-aligned gate active aperture antenna (AAA) technology for use on Reconnaissance aircraft. This system will provide wide-band, duplex, communications links simultaneously to a ground unit, other aircraft, and a satellite surrogate. This electronically steered array is a cost-effective solution to numerous DoD requirements. On-Board Pre-Processing (OBPP) The prototype pre-processing effort will develop the capability to screen the data as close to the collection source as possible and advise analysts which data requires immediate expert human intervention. The effort involves the development of an electronic support system and software development.	roject suppor The results o perability, or latform and is t documentati t documentati AG) – Congr system will is a cost-effee re-processing t human inter	rts design sth f these effort general mill ncludes syst ion. FY05 t ess supports provide wide stive solution g effort will	udies, engine ts provide th itary utility of em testing it funds air tral the develop 2-band, dupl n to numerol develop the te effort invo	eering analy: te requisite e of an applica Maui. This ffic control a ment of the ex, commun us DoD requ capability te	sis, non-recu ngineering r tion. FY99 1 project has and navigatic multi-functic ications link uirements.	uring engine necessary to funds (Cong been called mal safety n on self-align s simultanec data as close f an electroni	ering, and of implement n ressional plu the Field Las on-recurring ed gate activ usly to a gre to the collectic support sy	ther efforts a nodifications is-up) continuser Demonstic engineering re aperture around unit, of ction source stem and soi	ssociated with or provide a ues the Laser ration (FLD) and for the RC-135 ntenna (AAA) her aircraft, and a as possible and ftware
5555555	\$2,083 Subsystem and system integration testing \$1,000 Design and fabricate systems \$400 Completed Range-in-a-Box fabrication and test \$200 Completed downselect of experimental aircraft interface design \$300 Developed Maui interfaces, prepare and ship system \$1,967 Performed system performance characterization and demonstration testing \$5,950 Total	tion testing tbrication anc erimental air repare and sh	l test craft and air ip system ation and de	craft interfac	e design					
<u>~</u>	Project 674754		Page	Page 3 of 12 Pages	Š			X	nibit R-2A (Exhibit R-2A (PE 0305207F)

	RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	A JUSTIFI	CATION	SHEET (I	R-2A Exh	libit)	Ω	DATE February 2000	y 2000
019 019	вирсет Астилту 07 - Operational System Development	em Developmen			PE NUMBER AND TITLE 0305207F Mann	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	Reconnai	ssance Sy	rstem	PROJECT 674754
3	A. Mission Description Continued	n Continued								
555	FY 2000 (\$ in Thousands) \$4,000 LR \$0	LRIS (Continuation of Congressionally directed and funded program)	Congressionally	directed and fi	ùnded progran	(ι				
333		- \$1,000 Integration of Acquisition Systems (LRIS) - \$600 System Modification (LRIS)	Acquisition Syst	ems (LRIS)						
<u> </u>	\$3,000 E \$4,363 C \$0 - \$11,363 T	Evaluate the MSAG AAA for use on the RC-135 as directed by Congress On Board Preprocessor Prototype (OBPP - Congressionally added program) - \$2,000 Electronic Support System (Prototype Preprocessor - Congressionally added) - \$2,363 Preprocessing Software Development (Prototype Preprocessor) Total	A for use on th Prototype (OBF oort System (Pr. Software Develc	e RC-135 as di P - Congressic stotype Prepro spment (Protot	irected by Con onally added p ocessor - Congrepe Preproces	igress rogram) ressionally add sor)	(pa)			
999	FY 2001 (\$ in Thousands) \$0 Nor \$0 Tot	<u>nds)</u> None. Prior year efforts reflect ⁽ Total	reflect Congre	Congressionally added funding.	funding.					
9	B. Project Change Summary Added the Multi-Function Self-Aligned Gate Technology and On-Board Pre-Processing effort to FY00.	nmary on Self-Aligned Gate T	echnology and	On-Board Pre-	Processing eff	ort to FY00.				
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	iding Summary (\$ in] FY 1999	Thousands) FY 2000	EY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
9	APPN 10,APAF, Line 55	Actual 5 137,201	234,385	<u>Estimate</u> 147,199	<u>Estimate</u> 142,840	<u>Estimate</u> 125,348	<u>Estimate</u> 77,632	<u>Estimate</u> 83,978	Complete Continuing	TBD
(3	D. Acquisition Strategy The RC-135 development and enhancement activities are managed by the Air Force through the BIG SAFARI program in the Reconnaissance System Program Office. These projects are managed by ASC/RA. ASC/RA provides technical oversight and management of all aircraft, ground and support system modifications, integration and flight test engineering responsibility, product assurance and acceptance testing, and logistics and training activities.	t nt and enhancement act ged by ASC/RA. ASC, ng responsibility, produ	ivities are mana RA provides te et assurance and	ged by the Air chnical oversig l acceptance te	Force through ght and managa sting, and logi	the BIG SAF ement of all air stics and traini	ARI program reraft, ground ng activities.	in the Reconne and support sy	aissance System Pr	rogram Office. Is, integration
3	E. Schedule Profile									
					FY 1999		FY 2000	0000	EX	FY 2001
o	Project 674754			Page	Page 4 of 12 Pages				Exhibit R-2A (PE 0305207F)	E 0305207F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A E)	khibit)		Ω	DATE Fe	February 2000	9
BUD 04	вирсет Астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	d Rec	onnaissan	ice Sy	rstem	PR 67	PROJECT 674754
<u>(</u>	E. Schedule Profile Continued	FY 1999 2 3 4	-	FY 2000 2 3	4	,	FY 2001	4
<u> </u>	Preliminary Design Review (LRIS) Critical Design Review (LRIS) Prototype Delivery (LRIS) Engineering Analysis Report (MSAG) Electronic Support System (OBPP) Software Prototype (OBPP) * - Denotes completed event X - Denotes planned event	n	•			×		•
-	Project 674754	Page 5 of 12 Pages				Exhibit I	Exhibit R-2A (PE 0305207F)	5207F)

	RDT&E PROGRAM ELEMENT	RAM ELE		PROJECT CO	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
20 308	вирсет Астилту 07 - Operational System Development	Jevelopme	ıt		PE NUMBER AN 0305207F	PE NUMBER AND TITLE 0305207F Manne	ыртп∟е Manned Reconnaissance System	aissance	System	9	РRОЈЕСТ 674754
9	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousanc	(SI				EV 1000	000	EV 2000	ç	EV 2001
56	System Design and Analysis Eshrication and Test] -, }	1,200	3,000	~ o F	0
<u> </u>							5, 5,	700 700 5,950	2,000 2,000 11,363	0 m	0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	ı (\$ in Thousand	ଜ						
Ð,	Performing Organizations: Contractor or Government Performing Activity Product Development Organizations	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	ASC/RAB Multiple Support and Management Organizations Test and Evaluation Organizations	Multiple ganizations	Aug 97	N/A	N/A	4,795	5,950	11,363		8,693	30,801
	Subtotals Subtotal Product Development Subtotal Support and Management	t nent				Total Prior to FY 1999 4,795	Budget FY 1999 5,950	Budget FY 2000 11,363	Budget FY 2001	Budget to Complete 8,693	Total Program 30,801
	Subtotal Test and Evaluation Total Project					4,795	5,950	11,363		8,693	30,801
	Project 674754			Page	Page 6 of 12 Pages	ges			Exhibi	Exhibit R-3 (PE 0305207F)	05207F)

	RDT	RDT&E BUDGET ITEM JU		VTION S	STIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	February 2000	y 2000
8UDG 07 -	виреет Астіміту 07 - Operational S	вирсет астилту 07 - Operational System Development			PE NUMBER AN 0305207F		ed Recor	ınaissan	ID TITLE Manned Reconnaissance System		PROJECT 674820
	COST	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674820		Manned Reconnaissance Systems U-2	47,529	12,435	0	0	0	0	0	Continuing	TBD
()	A. Mission Description This development projec Program (AIP). AIP immunitions (PGMs). Corintroduction of Asynchr. Several Line Replaceabl supportability life. Deverapability enhancements Aerial Vehicles (HAE Uenhanced operational carenhanced operational careduction studies for airc	A. Mission Description This development project supports high payoff improvements for the U-2 Advanced Synthetic Aperture Radar System (ASARS-2) through the ASARS-2 Improvement Program (AIP). All improves area search, precision geolocation, and image quality characteristics sufficiently to directly support the targeting of precision guided munitions (PGMs). Complex imagery will be produced by the AIP system and support significant exploitation products for the imagery analysts. AIP champions the introduction of Asynchronous Transfer Mode (ATM) datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards. Substraint Explaceable Units (LRU) including the Process Control Unit (PCU), Receiver - Exciter (RE), and transmitter are approaching the end of their supportability life. Developing new LRUs with next generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provide capability life. Developing new LRUs with next generation technology will make ASARS-2 are directly transferable to Global Hawk High Altitude Endurance Ummanned Aerial Vehicles (HAE UAV) should migration of this improvement become a requirement. AIP incorporated interface to Dual Data Link II (DDL II) will provide an Aerial Vehicles (HAE UAV) should migration of this improvement of a quick reaction capability (QRC) to improve the U-2 electronic warfare system (EWS) capability for Southwest Asia. Lastly this project includes funds from FY99 congressional additions to develop cockpit display improvements, conduct risk reduction studies for aircraft fuel conversion and complete reliability and maintainability upgrades and initial spares procurement for the SENIOR GLASS system.	wements for geolocation, sed by the AI of datalink for Process Configeneration to Improvements improvements complishes the ject includes uplete reliabil	the U-2 Add and image of and image of any system and mats to the lard Unit (PK schnology was not so the A at become a the developr funds from ity and main ity and main	vanced Synt quality charr id support si ISR commu CU), Receiv, ill make AS SARS-2 are requiremen requiremen rety of a qu FY99 cong	hetic Apertu acteristics si gnificant ex iity and sup er - Exciter ARS-2 supj directly trai t. AIP incorp ick reaction ressional ada	ure Radar Sy: ufficiently to ploitation pr ports Nation (RE), and tra cortable thro nsferable to (porated inter capability ((ditions to der d initial spare	stem (ASAR directly sup oducts for the al Imagery 1 msmitter are ugh the expted Global Hawl face to Dual QRC) to imp velop cockpiles procurem	tS-2) throug port the targ re imagery a fransmission approaching seted service k High Altin I Data Link I wove the U-2 it display im ent for the S	vements for the U-2 Advanced Synthetic Aperture Radar System (ASARS-2) through the ASARS-2 Improvem geolocation, and image quality characteristics sufficiently to directly support the targeting of precision guided ed by the AIP system and support significant exploitation products for the imagery analysts. AIP champions the datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards Process Control Unit (PCU), Receiver - Exciter (RE), and transmitter are approaching the end of their generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provid Improvements to the ASARS-2 are directly transferable to Global Hawk High Altitude Endurance Unmanned improvement become a requirement. AIP incorporated interface to Dual Data Link II (DDL II) will provide an complishes the development of a quick reaction capability (QRC) to improve the U-2 electronic warfare system includes funds from FY99 congressional additions to develop cockpit display improvements, conduct risk plete reliability and maintainability upgrades and initial spares procurement for the SENIOR GLASS system.	vements for the U-2 Advanced Synthetic Aperture Radar System (ASARS-2) through the ASARS-2 Improvement geolocation, and image quality characteristics sufficiently to directly support the targeting of precision guided ed by the AIP system and support significant exploitation products for the imagery analysts. AIP champions the datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards. Process Control Unit (PCU), Receiver - Exciter (RE), and transmitter are approaching the end of their generation technology will make ASARS-2 supportable through the expected service life of the U-2 and provide Improvements to the ASARS-2 are directly transferable to Global Hawk High Altitude Endurance Unmanned improvement become a requirement. AIP incorporated interface to Dual Data Link II (DDL II) will provide an complishes the development of a quick reaction capability (QRC) to improve the U-2 electronic warfare system ject includes funds from FY99 congressional additions to develop cockpit display improvements, conduct risk plete reliability and maintainability upgrades and initial spares procurement for the SENIOR GLASS system.
	* FY99 is underst	* FY99 is understated by 266K. BTR not reflected in ABIDES database.	ABIDES da	tabase.							
222222222	EY 1999 (\$ in Thousands) \$5,000 Cor \$3,000 Cox \$1,250 Risi \$2,300 AIF \$13,680 Cor \$620 Flig \$220 SPC \$2,120 Pos \$2,500 Cor \$2,500 Adv	Completed R&M upgrades and procures initial spares for SENIOR GLASS Cockpit display improvements development Risk reduction studies for fuels conversion to JP-8 from JP-TS AIP Baseline Exploitation tools development Continued development of AIP on-board processor Flight test support SPO Support Post-processing Exploitation Tool Development (Super-Resolution, CCD, IFSAR) Continued Receiver-Exciter Controller development Advanced data storage array development	d procures initial spares for SEN s development s conversion to JP-8 from JP-TS is development P on-board processor Cool Development (Super-Resoluontroller development evelopment	itial spares in to JP-8 from nt cocessor ment (Super elopment	for SENIOR n JP-TS r-Resolution	GLASS GCD, IFS,	AR)				
ď	Project 674820			Page	Page 7 of 12 Pages	S			ĒX	hibit R-2A (F	Exhibit R-2A (PE 0305207F)

	RDT&E B	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	000
BUDG 07 -	вирдет Астіvітץ 07 - Operational System Development	n Development	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System		РRОЈЕСТ 674820
(D)	A. Mission Description Continued	ontinued			
99999	FY 1999 (\$ in Thousands) Continued \$4,352 Continued dev \$2,700 Continued dev \$9,537 U-2 QRC Defe \$47,529 Total	ids) Continued Continued development of AIP Range migration software Continued development of ASARS-2 Data Link U-2 QRC Defensive System Development Total	tware		
2999999999	\$3,500 Devel \$5,500 Continuous \$1,500 Continuous \$1,000 Continuous \$1,172 Common \$4,75 September \$5,36 Begin \$5,25 Begin \$5,75 Devel \$12,435 Total	Develop DDL II interface to AIP (Congressionally added effort) Continued development of AIP on board processor Continued development of AIP Range migration software U-2 QRC Defensive System development Common Exploitation Tools SPO Support (AIP) Begin Beyond Line of Sight (BLOS) data link interface integration (AIP) Begin Radar Transmitter Development (AIP) Develop AIP employment concept scenarios	idded effort) tware ace integration (AIP)		
999	FY 2001 (\$ in Thousands) \$0 Fundi	<u>ids)</u> Funding transferred to PE 0305202F Total			
9	B. Project Change Summary FY99 Congressional adds: AIF FY00 Congressional adds: Dux	B. Project Change Summary FY99 Congressional adds: AIP (\$9.0M), SENIOR GLASS (\$5M), cockpit FY00 Congressional adds: Dual Data Link upgrade (\$3.5M)	B. Project Change Summary FY99 Congressional adds: AIP (\$9.0M), SENIOR GLASS (\$5M), cockpit upgrade development (\$3M) and risk reduction for fuel conversion to JP-8 (\$3.6M). FY00 Congressional adds: Dual Data Link upgrade (\$3.5M)	niversion to JP-8 (\$3.6)	Ψ.
	FY01 U-2 EWS QRC repi	FY01 U-2 EWS QRC reprogrammed from RDT & $f E$ to procurement to me	to procurement to meet higher priority AF and Theater requirements (\$4.595M).	<u>ن</u>	
Ъ	Project 674820	Pa	Page 8 of 12 Pages	Exhibit R-2A (PE 0305207F)	305207F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	GET ITEM	JUSTIFI	CATION	SHEET (F	8-2A Exh	ibit)	Ω	DATE February 2000	y 2000
800 04	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305207F Mann	AND TITLE Manned	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	ssance Sy	stem	PROJECT 674820
(£)	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	mmary (\$ in T FY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	EY 2002 Estimate	FY 2003 Estimate	EY 2004 Estimate	FY 2005 Estimate	Cost to	Total Cost
99	AF RDT&E PE 0305202 AIP AIP Production* (APAF**) DE 0205207	39,364	0 15,312	27,546 0	24,118 0	8,224	1,936	1,931	Continuing Continuing	TBD TBD
9		0 tter Deliveries i own in PE 0305	0 n 3QFY03 :202F FY01-05	12,777	18,659	15,380	990'9	4,016	Continuing	TBD
9	D. Acquisition Strategy For airborne collection capability upgrades, modify existing platform and associated ground control equipment via Engineering Change Proposals (ECPs)/Task orders to existing USAF contracts. Develop an electronic defensive system QRC capability, then deploy and sustain on U-2 aircraft in Southwest Asia. For ASARS-2, develop and test new technology line replaceable units (LRU's) for subsequent retrofit into the U-2's, this may be performed during normal opertions, U-2 Programmed Depot Maintenance (PDM), or during other ongoing U-2 modifications.	upgrades, mocop an electronic aceable units (I ther ongoing U	lify existing pla e defensive syst LRU's) for subs -2 modificatior	atform and ass em QRC capa sequent retrofii ns.	ociated ground bility, then dep t into the U-2's,	control equip loy and sustai , this may be p	ment via Engir n on U-2 aircra erformed durii	leering Chang ift in Southwe ig normal ope	e Proposals (ECP: st Asia. For ASA rtions, U-2 Progra)/Task orders to RS-2, develop mmed Depot
9	E. Schedule Profile			-	EY 1999 2 3	4	FY 2000 1 2 3	000 3 4	1 EX	FY 2001 2 3 4
233333333333	Production Critical Design Review Test & Evaluation Milestones N/A -AIP Prototype Flight Test -AIP Production Flight Test AIP IOC U-2 EWS QRC Engineering Milestones N/A -Contract Award -SDR -Critical Design Review -QRC Ground Test -QRC Flight Test	₩ Y		*	* *	* *				
	Project 674820			Page	Page 9 of 12 Pages				Exhibit R-2A (PE 0305207F)	E 0305207F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-	2A Exhil	oit)	DATE F	February 2000	00
вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305207F Mann	отіт <u>ге</u> Manned R	PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	nce System	4 9	РРОЈЕСТ 674820
(U) E. Schedule Profile Continued	FY 1999	_	FY 2000	7	FY 2001	
(U) -AIP Interface with DDLII		-		1	2 2	
(U) *- Denotes Completed Event X-Denotes planned event						
Project 674820	Page 10 of 12 Pages			Exhib	Exhibit R-2A (PE 0305207F)	305207F)

	RDT&E PROGRAM ELEMENT	VM ELE		/PROJECT C	COST BREAKDOWN (R-3)	KDOW	/N (R-3)		DATE Fe	February 2000	00
90 0	BUDGET ACTIVITY O7 - Operational System Development	relopme	1t		PE NUMBER AND TITLE 0305207F Manned Reconnaissance System	Ю ТІТLE Manned	Reconn	aissance (System	<u> </u>	РRОЈЕСТ 674820
(3)	A. Project Cost Breakdown (\$ in Thousands)	n Thousand	(জ	:			7.72	9	000 13:11	Ş	1000 /81
(5)	Primary Hardware Development						30,683		6,127	3 r.	0
<u>e</u> e	Software Development Government Engineering Support						13,140 2,081	3,140 2,081	5,093 400)3 0	0
33	System Testing Total						1,625	1,625 47,529	815 12,435	n n	0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	nd Plannin	g Information	ı (\$ in Thousand	(\$1						
3	Performing Organizations:										
	Contractor or Cont	<u>Contract</u> Method/Type	Award or	Performing	Project						
			Obligation	Activity		Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Vehic	<u>Vehicle</u> ations	<u>Date</u>	EAC	EAC to F	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Raytheon (AIP & SENIOR CPIF	a 4	3096	N/A		0	30,081	6,726	0	Continuing	TBD
	L3Comm (AIP) CPIF	田	3096			0	2,766	ć	(0	2,766
	Cockpit						3,000	o (0 0	0 0	3,000
	ruei Conversion ORC						9.537	5.100	>	>	14,637
	Support and Management Organizations	ations									
	ASC/RAP/AFRL					0	220	330		0	550
	Test and Evaluation Organizations	~									
	WR-ALC/LR - Site 2,					0	625	279		0	904
	Edwards AFB										_
	Project 674820			Page	Page 11 of 12 Pages				Exhib	Exhibit R-3 (PE 0305207F)	05207F)
				9.							

RDT&E PROGRAM ELEMENT/PROJECT	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	٦
BUDGET ACTIVITY	PE NUMBER AND TITLE				4	PROJECT 674030
07 - Operational System Development	U3U3ZU/F Manned Reconnaissance System	a Reconn	alssauce	System		14020
Subtotale	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotal Product Development	0	46,684	11,826	0	TBD	TBD
Subtotal Support and Management	0	220	330		0	550
Subtotal Test and Evaluation	0	625	279		0	904
Total Project	0	47,529	12,435	0	TBD	TBD
Project 674820	Page 12 of 12 Pages			Exhib	Exhibit R-3 (PE 0305207F)	05207F)

PE NUMBER: 0305208F
PE TITLE: Distributed Common Ground Systems

	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - 0	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305208F Distri	AND TITLE F Distril	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	mmon G	round S	ystems	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	20,602	24,205	21,330	15,146	21,009	16,280	14,939	Continuing	TBD
674821	Distributed Common Ground System Interoperability	2,242	1,592	1,593	1,609	1,658	1,695	1,732	Continuing	TBD
674826	Common Imagery Ground / Surface Systems	18,360	22,613	19,737	13,537	19,351	14,585	13,207	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Imagery Ground/Surface Systems (CIGSS) for Imagery Intelligence (IMINT); Joint Interoperable Operator Network (JION) for Signal Intelligence (SIGINT); and Joint family of systems capable of supporting all levels of conflict, interoperable (using the Common Data Link) with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer and Intelligence (C4I) environment. The program integrates architectures and standards from Common processing, exploiting, and disseminating data from airborne and national reconnaissance platforms, and commercial sources. The DCGS program is developing a The Distributed Common Ground System (DCGS) Program is a cooperative effort between the services and agencies to provide systems capable of receiving, Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT.

1) B. Budget Activity Justification

Program is in Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(S. Program Change Summary (S. in Thousands)

		FY 1999	EX 2000	FY 2001	Total Cost
9	Previous President's Budget (FY 2000 PBR)	20,906	12,820	14,018	TBD
9	Appropriated Value	21,159	24,820		
9	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-253			
	 Small Business Innovative Research 				
	c. Omnibus or Other Above Threshold Reprogram		-133		
	d. Below Threshold Reprogram	-189			
	e. Rescissions	-115	-482		
		Page 1 of 11 Pages		Exhibit R-2	Exhibit R-2 (PE 0305208F)

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	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	bit)	DATE February 2000	8
3008 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305208F Distribut	ND TITLE Distributed Common Ground Systems	und Systems	
<u>(</u>	C. Program Change Summary (\$ in Thousands) Continued	FY 1999	FY 2000	FY 2001	Total Cost
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	20,602	24,205	7,312 21,330	TBD
<u>(</u>	Significant Program Changes: - Congress added \$12M in FY00 for Eagle Vision - USAF added \$21.5M in the FY01-05 budget for Common Imagery Processor	16			
	Page	Page 2 of 11 Pages		Exhibit R-2 (PE 0305208F)	05208F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	USTIFIC,	ATION &	SHEET ((R-2A E	xhibit)		DATE	February 2000	y 2000
BUDG - 20	BUDGET ACTIVITY 107 - Operational System Development			PE NUMBER 0305208	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	buted Co	emmon G	round S	ystems	PROJECT 674821
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674821	21 Distributed Common Ground System Interoperability	2,242	1,592	1,593	1,609	1,658	1,695	1,732	Continuing	TBD
9	A. Mission Description The Distributed Common Ground System (DCGS) Program is a cooperative effort between the services and agencies to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms, and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable (using the Common Data Link) with reconnaissance platforms and sensors, and integrated into the Joint C4I environment. The interoperability program integrates architectures and standards from Common Imagery Ground/Surface Systems (CIGSS) for IMINT; Joint Interoperable Operator Network (JION) for SIGINT; and Joint Airborne MASINT Architecture (JAMA) for MASINT.	Program is a of a suborne and of conflict, into ty program into the N) for SIGIN	cooperative or national rec roperable (u egrates archift; and Joint I; and Joint I;	ogram is a cooperative effort between the services and agencies to provide systronne and national reconnaissance platforms, and commercial sources. The Donflict, interoperable (using the Common Data Link) with reconnaissance platforgram integrates architectures and standards from Common Imagery Ground/for SIGINT; and Joint Airborne MASINT Architecture (JAMA) for MASINT.	en the servic platforms, a mmon Data standards fi	es and agenund commerc Link) with n com Commo	cies to provi cial sources. econnaissan n Imagery C	de systems o The DCGS ce platforms rround/Surfa	capable of rec program is d s and sensors, ace Systems (eiving, eveloping a and integrated CIGSS) for
29333	FY 1999 (\$ in Thousands) \$1,654 Continued evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines. \$338 Continued engineering development of NATO interoperability standards. \$250 Managed DCGS Infrastructure Integrated Product Team (IPT) for ASD/C3I. \$2,242 Total	architectures a lopment of N_{ℓ} are Integrated	nd standards ATO interop Product Tea	itectures and standards for commonality and ment of NATO interoperability standards. Integrated Product Team (IPT) for ASD/C31.	nality and in ıdards. ASD/C3I.	ıteroperabilit	ty across inte	elligence dis	ciplines.	
99999	FY 2000 (\$ in Thousands) \$1,092 Continue evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines. \$250 Continue engineering development of NATO interoperability standards. \$250 Manage DCGS Infrastructure Integrated Product Team (IPT) for ASD/C3I. \$1,592 Total	rchitectures an opment of NA re Integrated P	d standards TO interope, roduct Tean	for common rability stanα 1 (IPT) for A	ality and intrards.	eroperability	/ across intel	ligence disc	iplines.	
99999	FY 2001 (\$\frac{\frac{\psi}{\psi} in Thousands)}\$ \$1,093 Continue evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines. \$250 Continue engineering development of NATO interoperability standards. \$250 Manage DCGS Infrastructure IPT for ASD/C3I. \$1,593 Total	rchitectures an opment of NA re IPT for ASI	id standards TO interope 3/C31.	for common rability stanc	ality and int dards.	eroperability	/ across intel	lligence disc	iplines.	
<u> </u>	B. Project Change Summary									
<u>. </u>	Project 674821		Page	Page 3 of 11 Pages	es			Û	xhibit R-2A (Exhibit R-2A (PE 0305208F)
				1460						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (F	8-2A Exh	libit)	D,	DATE Februa	February 2000
80D 02	вирдет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305208F Distri	AND TITLE Distribu	ted Comm	on Ground	⊌ट माम∟ Distributed Common Ground Systems	PROJECT 674821
Ð	C. Other Program Funding Summary (\$ in Thousands) EX 1999 EY 2001 Actual Estimate Estimate	FY 2002 Estimate	EY 2003 Estimate	EX 2004 Estimate	FY 2005 Estimate	Cost to	Total Cost
9	Other APPN Procurement line is classified. See PEM for details.						
9	D. Acquisition Strategy DCGS interoperability program will use FFRDC, GSA contracts, and competitive processes where possible.	titive processes	, where possib	je.			
9	E. Schedule Profile	0001 753			g	Ĭ	.000
	1	FY 1999 2 3	4	1 2 3	3 4	1 2 E	$\frac{\text{FY } 2001}{3}$
<u> </u>	DCGS commonality and Interoperability standards NATO Interoperability Standards DCGS Infrastructure IPT DCGS commonality and Interoperability standards NATO Interoperability Standards DCGS Infrastructure IPT DCGS Commonality and Interoperability standards NATO Interoperability Standards DCGS Infrastructure IPT *- Denotes Completed Event X-Denotes planned event	* * *		×××		×××	
ш	Project 674821 Page	Page 4 of 11 Pages				Exhibit R-2A (Exhibit R-2A (PE 0305208F)

	RDT&E PROGRAM ELEMEN	GRAM ELE		I/PROJECT COST BREAKDOWN (R-3)	OST BI	REAKDO!	NN (R-3)		DATE F e	February 2000	000
BUD(07 -	вирсет Астилту 07 - Operational System Development	n Developme	nt		PE NUMB 030520	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	uted Com	mon Grou	und Syste	ms	PROJECT 674821
9	A. Project Cost Breakdown (\$ in Thousands)	wn (\$ in Thousan	ds)								
!							FY 1999	666	FY 2000	8	FY 2001
<u> </u>	Program Management System Engineering - Architectures and Interonerability	nitectures and Inter	ronerability				````	200	200	0 9	200
<u>3</u>	Total		roperaounty				7 7	2,042 2,242	1,592	2 0	1,393
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	story and Plannin	g Information	ı (S in Thousanc	(হু						
3	Performing Organizations:	:Si									
	Contractor or	Contract									
	Government	Method/Type	Award or	Performing	Project			,	,	,	
	Activites	Or Funding	Congation	Activity	Ciffice	Total Prior	Budget	Budget	Budget	Budget to	Total
	Product Development Organizations	venicie inizations	Date	TEAL	FAC	10 FY 1999	6661 X 4	FY 2000	FY 2001	Complete	Program
	MITRE	SS,FFP	2099	N/A	N/A		550	400	400	Continuing	TBD
	SAIC	SS,IDIQ	2099	N/A	N/A		700	599	493	Continuing	TBD
	MRJ	SS,FFP	2099	N/A	N/A		300	250	250	Continuing	TBD
	Other Non-Prime Gov't	Multiple	2Q99	N/A	N/A	0	492	143	250	Continuing	TBD
	Contracts										
	Support and Management Organizations	Organizations									
	SAIC	SS,IDIQ	2099	N/A	N/A		200	200	200	Continuing	TBD
	Test and Evaluation Organizations	zations									
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Product Development	ient				0	2,042	1,392	1,393	TBD	TBD
	Subtotal Support and Management	gement					200	200	200	TBD	TBD
	Subtotal Test and Evaluation	Į,									
	Total Project					0	2,242	1,592	1,593	TBD	TBD
Ď	Droiost 67/824			É	4				1	(((Í
	ojeci ozaozi			Page	Page 5 of 11 Pages	çes			Exhib	Exhibit R-3 (PE 0305208F)	305208F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	VTION 8	ЗНЕЕТ (R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDGE. 07 - C	вирсет астилту 07 - Operational System Development			PE NUMBER 0305208	PE NUMBER AND TITLE 0305208F Distrib	onted Co	mmon G	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	ystems	PROJECT 674826
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674826	Common Imagery Ground / Surface Systems	18,360	22,613	19,737	13,537	19,351	14,585	13,207	Continuing	TBD
	A. Mission Description A. Mission Description A. Mission Description A. Mission Description B. Sources. DCGS is a system capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms, and commercial sources. DCGS is a system of systems that does not need to be collocated but must be interconnected by a robust communication structure to provide data streams between intelligence collector, exploiters, producers, disseminators, and users. DCGS has four core locations: two CONUS based and two OCONUS. Other DCGS systems are deployable among air Force operational units at numbered Air Force level, to support the Joint Task Force commander and the Air Operations Center. The CONUS based systems are deployable among approached with sate of the systems are deployable and capable of reachback operations via satellite. Eagle Vision is a deployable ground station for programming and collecting panchromatic, multispectral, and synthetic aperture radar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national imagery for mission planning, topographic analysis, and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE. The Reno ANGB, NV National Eagle (commercial imagery processing and exploitation system (networked with other DCGS sites) that supports the Theater Airborne Reconnaissance System (TARS) in addition to other DCGS missions. A mobile CIGSS/DCGS testbed is used by Program Offices to test interfaces with new sensors, applications, and other modifications, and to support the integration and test of DCGS components prior to introduction into the operational environment.	sing, exploitineed to be codisseminator units at numl freachback of adar broad-ar and intelliger by post proced V also has a 1 of other DC Offices to tes he operations	ing, exploiting, and disse eed to be collocated but r lisseminators, and users. nits at numbered Air For reachback operations via lar broad-area imagery find intelligence-gathering y post processing capabil also has a processing an to other DCGS missions. effices to test interfaces we eoperational environmer	seminating d t must be int s. DCGS has orce level, to ia satellite. from comm g purposes. oility) is beir and exploitat is. with new se	ata from airl erconnected s four core le s support the Eagle Vision ercial earth r The AF has ig upgraded ion system (borne and na by a robust ocations: two Joint Task 1 1 is a deploy emote sensi an operation with direct of networked v	ational recor communical o CONUS bi Force comm able ground ng satellites nal Eagle Vi lownlink cap vith other Di	naissance p tions structu ased and tw ander and th station for I and process ision system pability alon CGS sites) t	ng, exploiting, and disseminating data from airborne and national reconnaissance platforms, and commercial to be collocated but must be interconnected by a robust communications structure to provide data stream isseminators, and users. DCGS has four core locations: two CONUS based and two OCONUS. Other DCG ints at numbered Air Force level, to support the Joint Task Force commander and the Air Operations Center reachback operations via satellite. Eagle Vision is a deployable ground station for programming and collect of intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE. I post processing capability) is being upgraded with direct downlink capability along with direct downlink lalso has a processing and exploitation system (networked with other DCGS sites) that supports the Theater to other DCGS missions. Highest to test interfaces with new sensors, applications, and other modifications, and to support the integrations operational environment.	ing, exploiting, and disseminating data from airborne and national reconnaissance platforms, and commercial eed to be collocated but must be interconnected by a robust communications structure to provide data streams lisseminators, and users. DCGS has four core locations: two CONUS based and two OCONUS. Other DCGS nits at numbered Air Force level, to support the Joint Task Force commander and the Air Operations Center. The reachback operations via satellite. Eagle Vision is a deployable ground station for programming and collecting lar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE. The y post processing capability) is being upgraded with direct downlink capability along with direct downlink being also has a processing and exploitation system (networked with other DCGS sites) that supports the Theater to other DCGS missions. ffices to test interfaces with new sensors, applications, and other modifications, and to support the integration and eoperational environment.
L o	The Common Imagery Processor (CIP) is a major interoperability initiative to develop a common sensor processing element within CIGSS architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within CIGSS. Baseline capability includes	teroperability s it into an ex	y initiative t	o develop a	common sen	Isor processi	ing element	within CIGS nin CIGSS.	S architectur Baseline cap	re. The function ability includes

of the Cir is to accept announc integery data, process it into an exploration integer, and output the current and to accept and to a most great or and to a multi-intelligence.

F/A-18 and U-2 sensors. Efforts are underway to augment the CIP baseline to process data from upgraded/ new sensors and to investigate CIP as a multi-intelligence. processor.

(U) FY 1999 (\$ in Thousands)

Continued CIGSS/DCGS testbed development. \$2,500 \$2,572 \$1,450

Continued system engineering and technical support. Continued USMC Tactical Exploitation Group (TEG) development efforts. 999

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Project 674826

Exhibit R-2A (PE 0305208F)

	RDT&I	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000	2000
8UD(07 -	вирсет АстіvітY 07 - Operational Sy s	вирсет астипт 07 - Operational System Development	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	d Systems	PROJECT 674826
<u>(</u>	A. Mission Description Continued	on Continued			
55	FY 1999 (\$ in Thousands) Continued \$2,000 Continued sust commercial safe commercial safe safe safe safe safe safe safe safe	aining engineerin tellites.	g for commercial satellite imagery. Begin integration of 5 meter and prepare architecture for 1 meter	architecture for 1 me	ıter
39	\$3,308 \$18,360	Continued evolving C.I. to keep pace with new sensors Total	pace with new sensors and projected sensor modification programs.		
99	FY 2000 (\$ in Thousands) \$2,663 Cor	<u>inds)</u> Continue CIGSS/DCGS sustaining engineering to implement software upgrades and enhancements to maintain compatibility with changing national and tactical interfaces.	ement software upgrades and enhancements to maintai	n compatibility with	changing
99	\$900 \$450	Continue CIGSS/DCGS testbed development. Continue system engineering and technical support.			
<u>3</u>	\$1,950	Continue to provide sustaining engineering for commercial satellite imagery to ensure operational usability. Continue integration of 5 m and architecture preparation for 1 meter commercial satellites.	cial satellite imagery to ensure operational usability. (es.	Continue integration	of 5 m and
99	\$4,650 \$12,000	Continue evolving CIP to keep pace with new sensors and projected sensor modification programs. Investigate multi-int processing. Upgrade and procure Eagle Vision commercial imagery direct downlink capabilities. Integrate with National Eagle. (Congressional add to FY00)	bace with new sensors and projected sensor modification programs. Investigate multi-int processing on commercial imagery direct downlink capabilities. Integrate with National Eagle. (Congressional	te multi-int processin Eagle. (Congression	ıg. ıal add to
9	\$22,613	Total			
33	FY 2001 (\$ in Thousands) \$2,440 Cor	<u>inds)</u> Continue CIGSS/DCGS sustaining engineering to implement software upgrades and enhancements to maintain compatibility with changing	ement software upgrades and enhancements to maintai	n compatibility with	changing
9	\$1.500	national/tactical interfaces and to increase interoperability with expanding ISR platform/sensor baseline. Continue CIGSS/DCGS testbed develonment.	lity with expanding ISR platform/sensor baseline.		
3	\$360	Continue system engineering and technical support.			
<u> </u>	\$1,950	Continue to provide sustaining engineering for commercial satellite imagery to ensure operational usability. Continue integration of new/upgraded commercial imaging satellites.	cial satellite imagery to ensure operational usability. (Continue integration	of
99	\$13,487	Continue evolving CIP to keep pace with growing sensor baseline: new and upgraded sensors. Implement initial multi-int processing upgrades. Total	or baseline: new and upgraded sensors. Implement ini	ial multi-int process	ing upgrades.
<u>e</u>	B. Project Change Summary	ummary			
Ф	Project 674826	Page 7	Page 7 of 11 Pages	Exhibit R-2A (PE 0305208F)	= 0305208F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET	R-2A Exh	ibit)		DATE Fahrijary 2000	2000
800 07	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305208F DIStri	AND TITLE F Distribu	ted Comm	on Groun	ID TITLE Distributed Common Ground Systems	PROJECT 674826
(£)	C. Other Program Funding Summary (\$ in Thousands) FY 2001 FY 2001 Actual Fertimate Fetimate Fetimate	EY 2002 Ferimate	FY 2003 Fetimate	EY 2004 Fertimate	FY 2005 Ferimate	Cost to	Total Cost
5	letails.		Comman	American	A STATE OF THE STA		TBD
<u> E</u>	D. Acquisition Strategy DCGS will use a spiral development program to field and upgrade the common ground station architecture. Systems and technology will be contracted for under a competitive Request for Proposal (RFP) process where possible.	non ground stati	ion architectur	e. Systems an	d technology v	will be contracted f	or under a
9	E. Schedule Profile	FY 1999	~	EY 2000	3000	FY	FY 2001
566	Assess national and tactical interface changes to DCGS Integrate new sensors and sensor modifications into CIP		*			1	
9999	Complete JSIPS Block III Upgrade Integrate national and tactical interface changes to DCGS	;		×	×		
9999	Integrate new sensors and sensor inconnections into Car Integrate/Test changes in testbed Update commercial imagery interface Assess/integrate national and tactical interface changes to DCGS			* *		×	
333	Integrate new sensors and sensor modifications into CIP Integrate/Test changes in testbed					×	
999	Update commercial imagery interface Release DCGS Spiral 00B RFP Award DCGS Spiral 00B contracts			×	×	×	
£255	Field DCGS Spiral 00B upgrades Release DCGS Spiral 01A RFP Award DCGS Spiral 01A contracts Factor Vision Direct Downlink Award ONV & SC ANG)				× >	× ×	
<u> </u>	Eagle Vision Direct Downlink Delivery (NV ANG)						×
	Project 674826	Page 8 of 11 Pages				Exhibit R-2A (PE 0305208F)	PE 0305208F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000
вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	PROJECT 674826
(U) E. Schedule Profile Continued	EY 2000	
*- Denotes Completed Event / X-Denotes planned event	4	2 3 4
		,
Project 674826	Page 9 of 11 Pages	Exhibit R-2A (PE 0305208F)

Decided Communication Project Cost Breakform (\$\text{Sint Disease Activity} Activity Disease Activity Disease Cost Breakform (\$Sint Disease Cost Breakform (\$\text{Sint Disease Cost Breakform (\$\text{Sin Disease Cost Breakform (\$\text{Sin Disease Cost Breakform (\$\te		RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	I/PROJECT CO	COST BF	BREAKDOWN (R-3)	NN (R-3)	_	DATE F 6	February 2000	000
A Project Cost Breakdown (S in Thousands) A Project Breakdown (S in Thou	019 019	оет астипу - Operational System Г	Jevelopme	nt		PE NUMBI 030520	ER AND TITLE 1 8F Distrib	uted Com	mon Grou	und Syste		РРОЈЕСТ 674826
Hardware/Software Development System Engineering Program Management 1.4400 1,000 1,000 600 600 600 600 1,000 600 600 600 600 600 600 600 600 600	3		(\$ in Thousand	İS				7.4	o	00 XI	S	7000
System Engineering 8,367 5,969 System Incidence 5,969 System Incidence System Incidence 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,677 1,670 1,000	5	Hardware/Software Develon	nent					4.	343 [25	1.38	31 12	8.515
System Integration 2,250 13,657 Hower Development 1,400 600 Hower Development 1,400 1,400 600 From Management 1,400 1,000 600 1,000 <t< td=""><td>3</td><td>System Engineering</td><td></td><td></td><td></td><td></td><td></td><td>· &</td><td>367</td><td>5,96</td><td>69</td><td>7,322</td></t<>	3	System Engineering						· &	367	5,96	69	7,322
Ancellary Hardware Development Ancellary Hardware Development Total B. Budget Acquisition History and Planming Information (S in Thousands) Performing Organizations: Contractor Occurractor Occurractor Contractor Occurractor Occurractor Contractor Occurractor Occurractor Contractor Occurractor Contractor Occurractor Occurractor Contractor Contractor Occurractor Contractor Contr	9	System Integration						2,	250	13,65	7.9	1,800
B. Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contract Performing Descriptions: Project Project Project Project Project Budges	999	Ancillary Hardware Developr Program Management Total	nent					18, 1, 2,	000 400 360	60 1,00 22,61	3 3 3	1,100 1,000 19,737
Performing Organizations: Contract Contractor of Contractor of Souteractor of Endering Endering December Contractor of Endering Designations Performing Activity Project Lockles Incept Price EAC Incept In	9	B. Budget Acquisition Histor	ry and Plannin	g Information	(S in Thousand	ଜ						
Contract Contract Available Performing Project Available Project Activity Office Total Prior EAC EAC to FX 1999 FX 2000 FX 2001 Complete Compl	3	Performing Organizations:										
Method/Type Award or Performing Propest Method/Type Award or Activity Office Total Prior Budget Budget Budget Budget Budget EAC EAC EAC to FY 1999 FY 2000 FY 2001 Complete		Contractor or	Contract	•								
Vehicle Date EAC EAC EAC EAC to FY 1999 FY 2000 FY 2001 Complete land, TX Multiple 2Q99 N/A N/A N/A 0 1,665 500 300 Continuing oman, C, CPFF 2Q99 N/A N/A N/A 0 1,665 4,896 13,487 Continuing tin, San Jose, Multiple 2Q99 N/A N/A N/A 0 1,64 300 300 Continuing S Upgrades and TBD TBD N/A N/A N/A 0 1,674 1,384 1,584 Continuing SS, TBD 3Q00 N/A N/A N/A N/A 0 1,674 1,384 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 4,995 1,122 0 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,572 456 Continuing SS, IDIQ 2Q99		<u>Government</u> <u>Performing</u>	Method/1ype or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
San Jose, Multiple 2099 N/A N/A N/A 0 1,665 500 300 Continuing		Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
land, TX Multiple 2Q99 N/A N/A N/A 0 1,665 500 300 Continuing oman, C, CPFF 2Q99 N/A N/A N/A 0 1,665 4,896 13,487 Continuing tin, San Jose, Multiple 2Q99 N/A N/A N/A 0 164 300 300 Continuing S Upgrades and TBD TBD N/A N/A N/A 0 1,674 1,384 1,600 Continuing S Upgrades and TBD TBD N/A N/A N/A 0 1,674 1,384 1,584 Continuing SS, TBD 3Q00 N/A N/A N/A N/A 0 4,995 1,122 0 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing		Product Development Organiz	ations									
tin, San Jose, Multiple 2Q99 N/A N/A N/A N/A N/A N/A N/A N			Multiple	2099	Α/Χ Σ	Α/Ζ Σ	0 0	1,665	500	300	Continuing	TBD
tin, San Jose, Multiple Additional Light N/A			C, CFFF	6607	Y/X	N/A	0	3,703	4,890	13,48/	Continuing	180
S Upgrades and TBD TBD N/A N/A N/A 0 1,674 1,384 1,600 Continuing FR Multiple 1Q00 N/A N/A N/A 0 1,674 1,384 1,384 Continuing SS, TBD 3Q00 N/A N/A N/A 0 4,995 1,122 0 Continuing N/A N/A N/A N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing		kheed Martin, San Jose,	Multiple	2099	N/A	N/A	0	164	300	300	Continuing	TBD
FR Multiple 1Q00 N/A N/A 0 1,674 1,384 1,384 Continuing SS, TBD 3Q00 N/A N/A 0 4,995 1,122 0 Continuing me Gov't TBD TBD N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A		CA	i i	i i			((•	•	•	Š
FR Multiple 1Q00 N/A N/A 0 1,674 1,384 1,384 Continuing SS, TBD 3Q00 N/A N/A 0 0 0 11,886 0 Continuing me Gov't TBD TBD N/A N/A 0 2,572 456 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing Exhibit R-3 (PE 0305208)		TBD for DCGS Upgrades and Migration	IBD	IBD	N/A	N/A	0	0	1,069	1,600	Continuing	ORI.
SS, TBD 3Q00 N/A N/A 0 0 11,886 0 Continuing me Gov't TBD TBD N/A N/A 0 4,995 1,122 0 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing Page 10 of 11 Pages Exhibit R-3 (PE 0305208		Matra, Velizy, FR	Multiple	1000	N/A	N/A	0	1,674	1,384	1,384	Continuing	TBD
me Gov't TBD TBD N/A N/A 0 4,995 1,122 0 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A N/A 0 2,125 0 1,100 Continuing Page 10 of 11 Pages Page 10 of 11 Pages Exhibit R-3 (PE 0305208) Exhibit R-3 (PE 0305208)		Matra	SS, TBD	3000	N/A	N/A	0	0	11,886	0	Continuing	TBD
SS, IDIQ 2Q99 N/A N/A 0 2,572 456 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing I,100 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 Exhibit R-3 (PE 0305208		Other Non-Prime Gov't	TBD	TBD	N/A	N/A	0	4,995	1,122	0	Continuing	TBD
SS, IDIQ 2Q99 N/A N/A 0 2,572 456 566 Continuing SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing Page 10 of 11 Pages Exhibit R-3 (PE 0305208		Contracts			,		•		•	ì		1
SS, IDIQ 2Q99 N/A N/A 0 2,125 0 1,100 Continuing Page 10 of 11 Pages Exhibit R-3 (PE 030520)		MITRE	ss, ibio	2099	V :	N/A	0	2,572	456	995	Continuing	TBD
Page 10 of 11 Pages		SAIC	ss, iDiQ	2099	N/A	N/A	0	2,125	0	1,100	Continuing	TBD
Page 10 of 11 Pages												
	ш	Project 674826			Page	10 of 11 Pa	ges			Exhib	oit R-3 (PE 0)	305208F)

	RDT&E PROGRAM ELEMENT		/PROJECT COST BREAKDOWN (R-3)	REAKDOV	NN (R-3)		DATE Fe	February 2000	30
20	BUDGET ACTIVITY 07 - Operational System Development	ent	PE NUMB 03052(PE NUMBER AND TITLE 0305208F Distributed Common Ground Systems	uted Com	mon Grou	ınd Syste		PROJECT 674826
9	Performing Organizations Continued: Support and Management Organizations Other Non-Prime Gov't TBD Contracts	TBD N/A	A N/A	0	1,400	1,000	1,000	Continuing	TBD
	Test and Evaluation Organizations Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation			Total Prior to FY 1999 0	Budget FY 1999 16,960 1,400	Budget FY 2000 21,613 1,000	Budget FY 2001 18,737 1,000	Budget to Complete TBD TBD	Total Program TBD TBD
	Total Project			0	18,360	22,613	19,737	TBD	TBD
Ъ.	Project 674826		Page 11 of 11 Pages	ages			Exhib	Exhibit R-3 (PE 0305208F)	05208F)

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PE NUMBER: 0305906F PE TITLE: NCMC - TW/AA System

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operation	ВUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305906	PE NUMBER AND TITLE 0305906F NCMC	TW/A	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System			
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	16,113	13,230	19,309	15,815	15,703	18,171	18,216	0	TBD
673880	СМՍ	105	0	0	0	0	0	0	0	1,291,797
673881	Integrated TW/AA	15,089	4,465	4,136	3,669	3,677	3,750	3,825	0	TBD
674409	CMU Legacy Interface	919	0	0	0	0	0	0	0	47,451
674806	N/UWSS NORAD/USSPACECOM Warfighting System	0	8,765	15,173	12,146	12,026	14,421	14,391	0	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program element funds the evolution of the Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command delivered under the just completed Cheyenne Mountain Upgrade (CMU) program. The RDT&E primarily funds integration of these and other existing mission areas to (USSPACECOM) Battle Management Command and Control (BMC2) systems and their supporting infrastructure into an integrated, flexible, interoperable, and more cost effective architecture. This integrated BMC2 system includes the Integrated Tactical Warning and Attack Assessment (ITW/AA) command and control systems provide a foundation for a fused battlespace picture for the CINC, plus required additional mission capability for the command and control of space forces so that USCINCSPACE can better support theater warfighting CINCs.

This program element has four related projects: The first project, CMU, was completed in early FY99 with Full Operational Capability (FOC) declaration on 29 Oct post-IOC CMU subsystems and direct mission software support to meet operational needs (adapting development systems to accommodate evolving older systems) and Missile Defense, and other Force Enhancements and Space Control programs). The third project, CMU Legacy Interfaces, provided software development upgrades to interoperability among ITW/AA systems, the integrated BMC2 system, and other program upgrades (e.g., Space Based Infrared Systems (SBIRS) integration, National 98, ahead of the Acquisition Program Baseline (APB) schedule. The second project, ITW/AA System Engineering, is the primary source for modernization planning, was completed in FY99. The fourth project, the NORAD/USSPACECOM Warfighting Support System (N/UWSS), provides the means by which the CINC BMC2 system of systems' will evolve to meet CINCNORAD/USCINCSPACE's evolving mission requirements and achieve Defense Information Infrastructure Common integration and architecture development of modifications, upgrades and new acquisitions into the larger BMC2 system. It also provides standardization and

Page 1 of 20 Pages

Exhibit R-2 (PE 0305906F)

1499

	RDT&E BUDGET ITEM JUSTIFICAT	STIFICATION SHEET (R-2 Exhibit)	oit)	DATE February 2000	
8UDG 07 -	вирдет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - T	NDTITLE NCMC - TW/AA System		
(വ)	A. Mission Description Continued Operating Environment (DII COE) compliance. This project is consistent with the Air Force Long Range Plan, Joint Vision 2010, and the Defense Planning Guidance. The Joint Requirements Oversight Council (JROC) approved the N/UWSS Mission Needs Statement (MNS) on 18 May 1998.	tent with the Air Force Long Range I WSS Mission Needs Statement (MN)	Plan, Joint Vision 201 S) on 18 May 1998.	.0, and the Defense Planning Gui	idance.
(3	B. Budget Activity Justification This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades in support of operational systems.	velopment, because the projects in th	nis program element sı	upport development acquisition	
9	C. Program Change Summary (\$ in Thousands)	FV 1999	FV 2000	FY 2001	Total Cost
55	Previous President's Budget (FY 2000 PBR) Appropriated Value	7,333	16,408 13,408		TBD
9	Adjustments to Appropriated Value a. Congressional/General Reductions	-545			
	b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram	227- 8,000	-73		
	d. Below Threshold Reprogram e. Rescissions	760'T	-104		rat
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	16,113	13,230	-172 19,309	TBD
<u>(i)</u>	Significant Program Changes: FY99: \$8000 Y2K additional supplemental appropriation to support development of the Center for Y2K Strategic Stability (CY2KSS) identified as a new start under PE0308699F in FY00 PB documentation. FY99 BTR: \$1,195 for Space Battle Manager Space Integration EFX 99 initiative and -\$98 to support higher AF priorities. FY01: Adjustment funded other AF and DoD priorities	development of the Center for Y2K S	Strategic Stability (CY	(2KSS) identified as a new start	under
		Page 2 of 20 Pages		Exhibit R-2 (PE 0305906F)	906F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JSTIFIC,	ATION S	SHEET ((R-2A E	xhibit)		DATE	Februa	February 2000
BUDG 07 -	ВИDGET ACTIVITY 07 - Operational System Development			PE NUMBEI 0305906	PE NUMBER AND TITLE 0305906F NCM(PENUMBER AND TITLE 0305906F NCMC - TW/AA System	\ System			PROJECT 673880
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673880	80 CMU	105	0	0	0	0	0	0	0	1,291,797
(D)	A. Mission Description The Cheyenne Mountain Upgrade (CMU) program met Joint Chiefs of Staff requirements to provide the National Command Authorities with timely, reliable, and unambiguous Integrated Tactical Warning and Attack Assessment (ITW/AA) data for force survival or retaliatory decisions in the face of air, space, or ballistic missile threats. The program provided: 1) survivable communications access for missile attack warning; 2) integrated warning of ballistic missile, atmospheric, and space threats; 3) standard user displays and warning processing systems at selected command centers; 4) an austere alternate facility capable of early/trans-attack warning and peacetime backup to the Missile Warning Center at Cheyenne Mountain. The CMU program implemented an acquisition strategy that tested and delivered four phases of user capability. Phase 1 implemented the missile warning capability in Sept 1995. Phases 2 and 3 were completed in August 1996 and July 1997, respectively. The Integrated Mission testing was completed on 5 August 1998. Full Operational Capability (FOC) was declared on 29 Oct 98.	net Joint Chi k Assessmen nunications a essing systen r at Cheyenn missile warni mpleted on 5	efs of Staff 1 tt (ITW/AA) iccess for mi is at selected a Mountain. ing capabilit August 1999	requirements) data for for issile attack 1 command (The CMU ₁ y in Sept 199 8. Full Oper	s to provide ce survival (warning; 2) centers; 4) program imp 95. Phases ? rational Cap	the National or retaliatory integrated van austere all slemented an 2 and 3 were ability (FOC,	Command / decisions in varning of b ternate facili: a acquisition completed i) was declar	Authorities w t the face of i allistic missi ity capable o strategy that n August 19 ed on 29 Oct	vith timely, 1 air, space, 0 ile, atmosph of early/trans t tested and 196 and July 4 98.	reliable, and r ballistic missile teric, and space s-attack warning delivered four 1997,
222	FY 1999 (\$ in Thousands) \$105 Completed CMU \$105 Total									
999	FY 2000 (\$ in Thousands) \$0 Not applicable \$0 Total									
999	FY 2001 (\$ in Thousands) \$0 Not applicable \$0 Total									
3	B. Project Change Summary No change.									
Ā	Project 673880		Page	Page 3 of 20 Pages	Se			EX	hibit R-2A (Exhibit R-2A (PE 0305906F)

<u> </u>	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEN	JUSTIF	ICATION	SHEET (I	3-2A Ext	ibit)	′α	DATE February 2000	2000 ح
8UC 07	вирсет аститту 07 - Operational System Development	elopment			PE NUMBER AND TITLE 0305906F NCM(AND TITLE	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	stem		PROJECT 673880
9	(U) C. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000 Actual Estimate	mary (\$ in T FY 1999 Actual	housands) EY 2000 Estimate	FY 2001 Estimate	EY 2002 Estimate	EY 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	Cost to	Total Cost
99		12,380	10,534	17,484	15,435	14,508	14,818	15,083	Continuing	
<u>Ð</u>	communications equipment, & spares)* PE0305906F Operations & Maintenance (PE0305906F) * Includes CMU and N/UWSS	84,319	65,400	81,053	85,132	89,933	90,842	73,034	Continuing	
9	D. Acquisition Strategy All major contracts within this program element were awarded after full and open competition.	gram element	were awardec	l after full and	open competiti	on.				
9	E. Schedule Profile				Y 199	•	FY 2000		됩,	
<u>(</u>)	CMU FOC * indicates completed task /X indicates scheduled task	cates schedule	ed task	→ *	n 7	1	7	v	7	ی 4
	Project 673880			Pag	Page 4 of 20 Pages				Exhibit R-2A (PE 0305906F)	PE 0305906F)

RDT&E PROGRAM ELEMENT	GRAM ELE	:MENT/PF	I/PROJECT C	OST BR	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
вирсет астіліту 07 - Operational System Development	n Developme	nt		PE NUMBE 030590	PENUMBER AND TITLE 0305906F NCMC - TW/AA System	- TW/AA §	System		9	PROJECT 673880
(U) A. Project Cost Breakdown (\$ in Thousands)	wn (\$ in Thousan	(Sp	:			FY 1999	666	FY 2000	0	FY 2001
 (U) SPO Support (U) Information Technology Services Program Contracts (U) Program Support (U) Total 	gy Services Progra	m Contracts					56 49 105	000		0 0 0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)	istory and Plannin	ng Information	(S in Thousand	ds)						
(U) Performing Organizations: Contractor or	ns: Contract									
Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Product Development Organizations Lockheed-Martin C/CPI	anizations C/CPIF/AF	Oct 91	271,814	271,814	271,814	0	0	0	0	271,814
CO Springs CO E-Systems	C/FPI/AF	Aug 86	103,240	103,240	103,240	0	0	0	0	103,240
St Petersburg FL TRW, Inc	C/FPI/AF	Jun 87	213,761	213,761	213,761	0	0	0	0	213,761
Carson CA GTE	C/CPIF/AF	Jan 92	238,415	238,415	238,415	0	0	0	0	238,415
Needham Hgts MA Lockheed-Martin	SS/CPIF/AF	Mar 93	120,018	120,018	120,018	0	0	0	0	120,018
CO Springs CO DISA (Govt)	Ю	Oct 93	9,152	9,152	9,152	0	0	0	0	9,152
Keston VA KAMAN Sciences	C/CPAF	Aug 95	3,176	3,176	3,176	0	0	0	0	3,176
CO Springs CO Misc	Various	Various	820	820	820	0	0	0	0	820
000CF3 to circle			Q	Dama & of 20 Dames	9			т Х Х	Evhihit R.3 (PE 0305906E)	OSQUEE
Project of 3000			Lar	50 J 01 20 I a	200					7 10000

	RDT&E PROGRAM ELEMEN	RAM ELE		I/PROJECT COST BREAKDOWN (R-3)	COST BF	REAKDON	VN (R-3)		DATE Fe	February 2000	8
80DC 07 -	BUDGET ACTIVITY 07 - Operational System Development	evelopme	nt		PE NUMBER AN 0305906F	PE NUMBER AND TITLE 0305906F NCMC	ыр тітіе NCMC - TW/AA System	system		9	PROJECT 673880
9	Performing Organizations Continued: Support and Management Organizations MITRE SS/PR TEMS/ITSP Contracts C/PR Program Support Various Test and Evaluation Organizations None	ontinued: anizations SS/PR C/PR Various	Oct 95 Various Various	N/A N/A N/A	N/A N/A N/A	168,615 72,966 89,715	0 56 49	0 0	0	0 0	168,615 73,022 89,764
9	Government Furnished Property: Control Control Item Description Product Development Property None Support and Management Property None Test and Evaluation Property	perty: Contract Method/Type or Funding Vehicle Y	Award or Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	lent				Total Prior to FY 1999 960,396 331,296 1,291,692	Budget FY 1999 0 105	Budget EY 2000 0 0 0	Budget EY 2001 0 0 0	Budget to Complete 0 0	Total Program 960,396 331,401 1,291,797
Ą	Project 673880			Pag	Page 6 of 20 Pages	Ses			Exhibit	Exhibit R-3 (PE 0305906F))5906F)

	RDT&E BUDGET ITEM JU	EM JU	STIFIC,	ATION (STIFICATION SHEET (R-2A Exhibit)	(R-2A E	xhibit)		DATE	Februa	February 2000
- 20 3019	BUDGET ACTIVITY 07 - Operational System Development	ent			PE NUMBER 0305906	PE NUMBER AND TITLE 0305906F NCMC	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	A Systen	_		PROJECT 673881
	COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673881	31 Integrated TW/AA		15,089	4,465	4,136	3,669	3,677	3,750	3,825	Continuing	TBD
9	A. Mission Description This project was established to integrate new acquisitions such as the Cheyenne Mountain Upgrade (CMU) program into the Integrated Tactical Warning and Attack Assessment (TWVAA) network when it became apparent that such efforts could only be achieved through rigorous system-of-systems design and engineering analysis of all interfaces and relationships among the twenty-six systems of the network. The project provides interface analysis and disconnect resolution among the ITW/AA systems and future program upgrades (e.g., Space Based Infrared System (SBIRS) integration, National Missile Defense, and other Force Enhancement and Space Control programs). This project supports the high priority task of integrating modifications, upgrades and new acquisitions for the USCINCSPACE fixed site Command and Control nodes (e.g., Cheyenne Mountain Operations Center & Space Operations Center), component C2 nodes (14 AF Aerospace Operations Center, 20th AF Missile Operations Center) and the mobile C2 node. As USCINCSPACE moves toward common infrastructures and open system platforms, this project will integrate those systems into the ITW/AA network though pre-planned vertical release upgrades. This project is the primary source for modernization planning, integration, and architecture development of modifications, upgrades and new acquisitions into the ITW/AA network. In FY99 \$8M plus-up funding under this PE was used to support development of the Center for Y2K Strategic Stability (CY2KSS) which was identified as a new start under PE0308699F in the FY00 President's Budget	ew acquisit ecame app: he twenty-s, Space Basthe high prinin Operation C2 node. Lough pre-p, upgrades sic Stability	ions such as arent that su ix systems ε sed Infrared iority task of ons Center δ As USCINC olanned vertifand new acq γ (CY2KSS)	the Cheyen ch efforts co of the network System (SB integrating & Space Op SPACE motical release u quisitions into which was	nne Mountair ould only be rk. The proj SIRS) integra modification erations Cen wes toward of upgrades. Tl to the ITW/A	1 Upgrade ((achieved thu ect provides ation, Nation ns, upgrades iter), compol common infi his project is An network.	CMU) progrational riporol interface and Missile Disand new according to the primary in the primary In FY99 \$8 under PE036	um into the I us system-of alysis and defense, and quisitions fo es (14 AF A and open systy source for 18 M plus-up f 08699F in the	ntegrated Tarsystems de isconnect recother Force other Force or the USCIN erospace Opstem platforr modernizaticunding under FY00 Pres	actical Warni sign and eng solution amo Enhancemen VCSPACE fir verations Cen ns, this proje on planning, er this PE wa sident's Budg	ing and Attack ineering analysis ang the ITW/AA at and Space xed site Command iter, 20th AF ect will integrate integration, and is used to support
99	\$3,361 Systems Engineering Integration Team (SEIT) and Future Plans merged into Integrated Systems Engineering (ISE), tasks include: transition space surveillance common user message traffic off AUTODIN onto new communication architecture; initial integration of new Clear radar sensor into the missile warning and space surveillance C2 nodes; initial upgrade of missile warning C2 nodes from SBIRS Increment I grounstation consolidation; planning and integration activities supporting NMD's BMC3 CINC node in the ITW/AA network; and software vertical release planning	ig Integrativ common usv ile warning n; planning	on Team (SI er message t ; and space s and integra	EIT) and Fut raffic off Al surveillance tion activitie	ture Plans m UTODIN on C2 nodes; ir	erged into Ir to new com nitial upgrad 3 NMD's BM	ntegrated Sy: munication a e of missile '	stems Enginurchitecture; warning C2	eering (ISE), initial integr nodes from FW/AA netv	, tasks inclucration of new SBIRS Increvork; and sof	on Team (SEIT) and Future Plans merged into Integrated Systems Engineering (ISE), tasks include: transition or message traffic off AUTODIN onto new communication architecture; initial integration of new Clear radar and space surveillance C2 nodes; initial upgrade of missile warning C2 nodes from SBIRS Increment I ground and integration activities supporting NMD's BMC3 CINC node in the ITW/AA network; and software vertical
9	\$3,728 AF long range planning 'jump start' funding for Space Battle Manager (SBM) command and control prototyping, supports Expeditionary Force Experiment '99 (FFX 99)	ning 'jump X 99)	start' fundin	g for Space	Battle Mana	ger (SBM) α	command an	d control pro	ototyping, su	ipports Expe	ditionary Force
99	\$8,000 Shared Early Warning System \$15,089 Total	stem	(SEWS) C)	(2KSS supp	(SEWS) CY2KSS supplemental appropriation	propriation					
Δ.	Project 673881			Page	Page 7 of 20 Pages	Se			Ä	thibit R-2A (Exhibit R-2A (PE 0305906F)

	RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	N SHEET (R	-2A Exhi	bit)	Δ	DATE February 2000	2000
BUD(07 -	вирсет астипту 07 - Operational System Development	em Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	ND TITLE	W/AA Sys	item		PROJECT 673881
(£)	A. Mission Description Continued	. Continued					:	
99	EY 2000 (\$ in Thousands) \$2,456 Rec	luirements, architecture, and	and upgraded fixed	and mobile C	2 nodes and se	nsors includi	planning for new and upgraded fixed and mobile C2 nodes and sensors including vertical release planning,	anning,
5	\$1,116	Communications arcinecture, recuiringly roadinap, and intornation operations into the WAYS network (e.g. Spires and night). Systems engineering for new and upgraded fixed and mobile C2 nodes and sensors including integrated scheduling, AUTODIN-R program, CRIRS and NIMD.	nd mobile C2 node	s and sensors	including integ	grated schedu	Spires and realth). Iling, AUTODIN-R p	rogram,
9	T T T T T T T T T T T T T T T T T T T	Test planning, execution, and test safety for new and upgraded fixed and mobile C2 nodes and sensors including vertical releases, AUTODIN-R	nd upgraded fixed a	nd mobile C2	nodes and sen	sors includir	ng vertical releases, A	UTODIN-R
9	84,465 T	program, SDINS, and revid. Total						
99	FY 2001 (\$ in Thousands) \$1,861	quirements, architecture, and	and upgraded fixed	and mobile C	2 nodes and se	nsors includi	planning for new and upgraded fixed and mobile C2 nodes and sensors including vertical release planning,	anning,
9	\$1,241 S	communications architecture, technology roadmap, and information operations into the 11 W/AA network (e.g. SBIKS and NMD). Systems engineering for new and upgraded fixed and mobile C2 nodes and sensors including integrated scheduling, AUTODIN-R program,	o, and information of the mobile C2 node:	perations into s and sensors	the 11 W/AA 1 including integ	network (e.g. grated schedu	SBIKS and NMD). Iling, AUTODIN-R p	rogram,
(3)	\$1,034 T	Spires, and INMID. Test planning, execution, and test safety for new and upgraded fixed and mobile C2 nodes and sensors including vertical releases, AUTODIN-R	nd upgraded fixed a	nd mobile C2	nodes and sen	ısors includir	ng vertical releases, A	UTODIN-R
9	P \$4,136 T	program, sdaks, and myd. Total						
9	B. Project Change Summary FY99: \$8000 Y2K additional Budget documentation. There	B. Project Change Summary FY99: \$8000 Y2K additional supplemental appropriation to support development of the CY2KSS identified as a new start under PE0308699F in the FY00 President's Budget documentation. There have been a number of schedule changes which are reflected and explained in Section E. Schedule Profile.	elopment of the CY. vhich are reflected a	2KSS identifi nd explained	ed as a new sta in Section E. S	art under PEC Schedule Pro	1308699F in the FY00 file.	
9	C. Other Program Fun	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 A chal Retimate Retimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Ferimate	FY 2005 Fertimate	Cost to	Total Cost
9	All other Appn shown in the CMU, Project 3880.	America			A		A CONTRACT	
9		D. Acquisition Strategy All major contracts within this program element were awarded after full and open competition.	nd open competitior	ï				
<u> </u>	Project 673881	I	Page 8 of 20 Pages				Exhibit R-2A (PE 0305906F)	0305906F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A	Exhibi	t)	DATE F	February 2000	9
900 07	вирсет Астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	LE MC - TW,	/AA System		9	PROJECT 673881
9	E. Schedule Profile						
		FY 1999	-	FY 2000	4	FY 2001	4
9	AUTODIN Transition completed		-		- ×		
3	SBIRS - ITW/AA Increment 1 completed						
9	SBIRS - ITW/AA Increment 2 completion			×			
9	Complete Clear Radar Upgrade Integration				×		
E	Start II W/AA MPDS-K Legacy Comm Transition Start ITW/A A Space Defence Operations Center De Engineering	*		×			
9	Start NMD - BMC3 ITW/AA Integration	· *					
3	ITW/AA Air Initiatives completed			×			
3	Pre-Planned ITW/AA Software Vertical Release Upgrades	*		: ×	×	×	×
3	HAVE STARE (FPS-129) Radar Integration completed				:	:	: ×
	* indicates task completed/X indicates scheduled task						
	- AUTODIN transition originally scheduled for completion Jan 00 delayed until May 00 (stage 1) for top priority space data users and (stage 2) for secondary customers	ntil May 00 (stage 1) fe	or top priori	ty space data use	ers and (stage 2)) for secondary	customers
	coming on line throughout the remainder of the year.	•	1	•	·) ,		
	(P)	S-M) dropped from list of projects when estimate exceeded available budget. Tasks being rolled into work to be	imate excee	eded available bu	idget. Tasks be	ing rolled into v	work to be
	awarded to the eventual ISC2 contractor in Aug 00.				,	ì	
	- The HAVE STARE (FPS-129) Radar will not be a fully integrated element of the Missile Warning Space Surveillance System. The radar will only be integrated with	of the Missile Warning	g Space Sur	veillance Systen	n. The radar wil	Il only be integr	rated with
	the Space Control Center and the Alternate Space Control Center. HAVE STARE Radar Integration delayed one year due to radome blowing off (weather conditions	TARE Radar Integration	n delayed o	ne year due to ra	dome blowing	off (weather con	nditions
	this time of year in Norway preclude replacing the radome which still has to be manufactured).	be manufactured).			1	•	
α.	Project 673881 Page	Page 9 of 20 Pages			Exhibit	Exhibit R-2A (PE 0305906F)	05906F)
		1507					

	RDT&E PROGRAM ELEMEN	AM ELE		T/PROJECT COST BREAKDOWN (R-3)	OST BR	EAKDOV	VN (R-3)		DATE Fel	February 2000	0
BUDG 07	BUDGET ACTIVITY 107 - Operational System Development	evelopmer	nt		PE NUMBER AN 0305906F		ID TITLE NCMC - TW/AA System	ystem		id 9	PROJECT 673881
9	A. Project Cost Breakdown (\$ in Thousands)	in Thousand	(S)	-			FY 1999	666	FY 2000		FY 2001
9	Major Contract Incremental Funding *	nding *					9	6,706	0	SI.	1,000
3	Award/Performance Fee)					_	142	0		0
5	SPO Support						,	790	1 644		1 680
3 3	MITRE TEMS/ITSP Contracts						, —	4,282 1.921	1,044		1,080
99	Program Support						2,0	2,038	297		292
<u>E</u>	Total			:		•	15,0	15,089	4,465		4,136
	* \$1M in FY01 - As part of the Total System Performance Responsibility (TSPR) initiative (identified in the N/UWSS section D. Acquisition Strategy) some systems engineering effort formerly performed by FFRDC (MITRE) will be transitioned to the ISC2 contractor. The change in MITRE funding of \$3.052 in the Feb 99 R-3 to the current \$1.680 in this document reflects that transition in FY01.	e Total System formed by FF] nent reflects th	RDC (MITRE)	Responsibility (T will be transition FY01.	SPR) initiat led to the IS	ive (identified C2 contractor.	in the N/UW! The change i	SS section D in MITRE fun	Acquisition S ding of \$3.05	trategy) some 2 in the Feb 9	systems 9 R-3 to
(3)	B. Budget Acquisition History and Planning Information (\$ in Thousands)	and Plannin	g Information	(\$ in Thousand	ଜ						
9	Performing Organizations:										
	Contractor or	Contract									
	±1	Method/Type	Award or	Performing	Project			•		-	E
	ing	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	<u>Budget</u>	Budget to	Total
	Activity	Vehicle	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Frogram
	Product Development Organizations DISA MIPR	ations	Anr 96	1 328	1 328	1 328				0	1.328
	leed Martin	C/CPIF/AF	Jun 95	6,390	6,390	6,390				0	6,390
	п	CPIF/AF	Nov 98	1,546	2,561	0	2,561			0	2,561
	Sunnyvale, CA									,	
	SPAWAR/Navy N	MIPR	Nov 98	583	1,132	0	1,435			0	1,435
	DTRA Dulles, VA	MIPR	Apr 99	N/A	N/A	0	1,300				1,300
	ISC2 Contractor (TBD) C	CP/AF	Oct 00	N/A	N/A	0	0	0	1,000	0	1,000
-	Prime Contractors (Various) V	Various	Various	N/A	N/A	0	1,552				1,552
ப	Project 673881			Page	Page 10 of 20 Pages	ges			Exhibit	Exhibit R-3 (PE 0305906F))5906F)

	RDT&E PROGRAM ELEMEN	RAM ELE		I/PROJECT	COST B	COST BREAKDOWN (R-3)	WN (R-3)		DATE F.	February 2000	8
BUE 07	вирсет АстіvітY 07 - Operational System Development	Developme	nt	i	PE NUMBER AN 0305906F		ID TITLE NCMC - TW/AA System	System		9	PROJECT 673881
<u> </u>	Support and Management Organizations MITRE TEMS/Information C/R	Continued: Sanizations CPFF	Oct 95 Various	A/Z	N/A A/N	53,025	4,282	1,644	1,680	Continuing	TBD
	Technology Services Program Contracts Program Support N/A Prime Contractors (Val Test and Evaluation Organizations None	N/A (Various)	Nov 95	N/A	N/A	7,128 812	2,038	2,524	1,104	Continuing	TBD 812
9	Government Furnished Prop Item Description Product Development Property None Support and Management Prop None Test and Evaluation Property	act od/Type nding	Award or Obligation Date	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	None <u>Subtotals</u> Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	t nent				Total Prior to FY 1999 7,718 93,186 100,904	Budget FY 1999 6,848 8,241 15,089	Budget FY 2000 0 4,465 4,465	Budget FY 2001 1,000 3,136 4,136	Budget to Complete 0 TBD TBD	Total Program 15,566 TBD TBD
<u> </u>	Project 673881			Pe	Page 11 of 20 Pages	səgi			Exhib	Exhibit R-3 (PE 0305906F))5906F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	ATION S	SHEET (R-2A E	xhibit)		DATE	February 2000	y 2000
BUD 04	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER 0305906	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	- TW/A	A Systen			PROJECT 674409
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674409	109 CMU Legacy Interface	919	0	0	0	0	0	0	0	47,451
(2)	A. Mission Description The FY95 Appropriations Conference Committee transferred \$41.5M from the O&M Critical Space Contract Operations Line to the RDT&E R-1 line in this program element. Congress realigned these funds from O&M to RDT&E to identify the costs associated with Cheyenne Mountain Upgrade (CMU) software development upgrades to the CMU program. To clearly account for this funding, this project, Legacy Interfaces, was established. This project provided funding for software development upgrades to the CMU program and for direct mission software support to meet operational needs and was completed in FY99.	nsferred \$41 to RDT&E to rthis fundir	.5M from th to identify th ig, this proje n software s	ie O&M Crit he costs asso ect, Legacy I.	ical Space C ciated with (interfaces, w.	Contract Ope Cheyenne M as establishe al needs and	rations Line lountain Up ed. This pro	to the RDT grade (CMU ject provide eted in FY99	&E R-1 line) software de d funding for	in this program velopment software
999	FY 1999 (\$ in Thousands) \$919 Provided Cheyenne Mountain software engineering support/upgrades \$919 Total	software eng	gineering sup	pport/upgrad	se					
999	FY 2000 (\$ in Thousands) \$0 Not applicable \$0 Total									
999	FY 2001 (\$ in Thousands) \$0 Not applicable \$0 Total									
9	B. Project Change Summary No changes									
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 Actual Estimate		FY 2001 Fetimate	FY 2002 Fertimate	EY 2003 Fertimate	FY 2004 Estimate		FY 2005 Fetimate	Cost to	Total Cost
£££	AF RDT&E Other APPN All other Appns show in the CMU, project 3880									
	Project 674409		Page 1	Page 12 of 20 Pages	Se			Ď	chibit R-2A (Exhibit R-2A (PE 0305906F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000
вирает астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT 674409
(U) D. Acquisition Strategy All major contracts within this program element were awarded after full and open competition.	competition.	
(U) E. Schedule Profile		
(U) Cheyenne Mountain test/software support upgrades* indicates task completed/X indicates planned task	FY 1999 FY 2000 2 3 4 1 2 3 4	FY 2001 1 2 3 4
Project 674409 Page 13 o	Page 13 of 20 Pages	Exhibit R-2A (PE 0305906F)

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	/PROJECT C	OST BR	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
9 1	BUDGET ACTIVITY 07 - Operational System Development	Developme	nt		PE NUMBER AN 0305906F		⊌D ΤΠLE NCMC - TW/AA System	System		9	РРОЈЕСТ 674409
(c)	A. Project Cost Breakdown (\$ in Thousands)	(S in Thousand	(31)				122	000	006 /81	9	1000 134
9999	SPO support ITSP Contracts Program Support Total						824 0 0 824 824 95 95	824 95 919	0 0 0	3000	0 0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	(S in Thousand	ଜ						
9	Performing Organizations:										
	Contractor or Government	Contract Method/Type	Award or	Performing	Project						
	Performing Activity	or Funding	Obligation Date	Activity	Office	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
	Product Development Organizations	zations						7007	17077 1 1	A COUNTY OF THE PROPERTY OF TH	TABIGIT
	Lockheed-Martin	CP/AF	Oct 94	9,352	9,352	9,352				0	9,352
	CO Springs CO F-Systems	FPIF/AF	Oct 04	1 880	1 880	1 880				c	1 880
	St Petersburg FL	10/11	5 30	1,000	1,000	1,000				>	1,000
	Kaman Sciences	CP/AF	Oct 94	18,214	18,214	18,214				0	18,214
	CO Springs CO										
	Kaman Sciences	CP/AF	Oct 94	12,471	12,471	12,471				0	12,471
	Navy/NISE	MIPR	Sep 95	3,244	3,244	3,244				0	3,244
	Support and Management Organizations	ranizations									
	MITRE	CPFF	N/A	N/A	N/A	1,102				0	1,102
	TEMS/ITSP Contracts	CPFF	N/A	N/A	N/A	261	824			0	1,085
	Program Support Test and Evaluation Organizations	N/A <u>tions</u>	N/A	N/A	N/A	∞	95			0	103
	None										
Ф	Project 674409			Page	Page 14 of 20 Pages	ies			Exhibi	Exhibit R-3 (PE 0305906F)	5906F)

RDT&E PROGRAM ELEMENT	EMENT/PRO	/PROJECT COST BREAKDOWN (R-3)	REAKDOV	VN (R-3)		DATE Fe	February 2000	٥
вирсет Астіліту 07 - Operational System Development	nt	PE NUM 03059	PENUMBER AND TITLE 0305906F NCMC - TW/AA System	- TW/AA S	ystem		9	PROJECT 674409
(U) Government Furnished Property: Contract Method/Type Item Or Funding Description Vehicle Product Development Property None Support and Management Property None Test and Evaluation Property None	Award or Obligation Delivery Date Date	Σξ	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project			Total Prior to FY 1999 45,161 1,371 46,532	Budget FY 1999 919 919	Budget EY 2000	Budget FY 2001	Budget to Complete 0 0 0	Total Program 45,161 2,290 47,451
Project 674409		Page 15 of 20 Pages	ages			Exhibi	Exhibit R-3 (PE 0305906F)	5906F)

	RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFICA	ATION S	ЗНЕЕТ (R-2A E	xhibit)		DATE	Februa	February 2000
8008 07 -	вирбет астіvіту 07 - Operational Sys i	эсет асті∨іту - Operational System Development			PE NUMBER AND TITLE 0305906F NCM(R AND TITLE	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	A System			PROJECT 674806
	COST (\$ in	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674806		N/UWSS NORAD/USSPACECOM Warfighting System	0	8,765	15,173	12,146	12,026	14,421	14,391	Continuing	TBD
(b)	A. Mission Description The NORAD/USSPACE Management/C4I 'system Architecture (JTA) stand mission capability to pro Command (NORAD)/CI) Battle Management missi responding to evolving m interoperable within the I The initial scope of N/UV new Space C2 capability.	A. Mission Description The NORAD/USSPACECOM Warfighting Support System (N/UWSS) provides the foundation for the future architecture for a NORAD/USSPACECOM Battle Management/C4I 'system of systems' that complies with the Defense Information Infrastructure Common Operating Environment (DII COE), Joint Technical Architecture (JTA) standards and provides for DoD/Joint C2 interoperability. New Space C2 capability will be integrated with this architecture and the evolving legacy mission capability to provide an integrated battlespace picture. N/UWSS scope addresses all Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command (USSPACECOM) functions including the Integrated Tactical Warning/Attack Assessment (ITW/AA) and Space Sattle Management mission applications with automated decision aids. N/UWSS objectives are to provide NORAD/USSPACECOM a C2 system that is flexible in responding to evolving mission needs (e.g. Space Based Infrared System (SBIRS), National Missile Defense (NMD), Space Control, and Information Operations); is interoperable within the NORAD/USSPACECOM warfighting functions and supporting/supported CINCs; and achieves reductions in total cost of ownership. The initial scope of N/UWSS will put into place an architecture to support evolution of fixed and endurable C2 nodes to DII COE compliance and develop and integrate new Space C2 capability.	System (N/U vith the Defer oint C2 inter e picture. N. SSPACECOI uted decision sed Infrared (set Infrared continuity) arfighting further to continue to set Infrared (set	WSS) provinse Informationerability. UWSS scopy M) functions aids. N/UV System (SBI nctions and support every	des the foun tion Infrastra New Space pe addresses s including t VSS objectiv (RS), Nation supporting/solution of fix	dation for th toture Common all Comman he Integrate es are to proupported CI upported CI ed and endu	te future arcland Operation of Chief in the interpretation of Tactical World NORA orige NORA NCs; and acurable C2 no	intecture for ing Environm tegrated with f (CINC) National Aming/Atta (D/USSPAC D), Space C thieves reducted to DII C	a NORAD/ hent (DII CC h this architt orth Americ ck Assessm ECOM a C ontrol, and] ctions in tota	USSPACEC UE), Joint Telecture and the an Aerospace and (ITW/AA system that Information of the cost of own once and devented the cost of own once and devented uses the cost of own once and devented the cost of the cost	
999	EY 1999 (\$ in Thousands) \$0 Not \$0 Tot	<u>nds)</u> Not applicable Total									
555555	FY 2000 (\$ in Thousands) \$888 Ent \$743 Fus \$2,228 Cot \$4,458 C2 \$448 C2 \$8,765 Tot	Enterprise infrastructure database development Fused battlespace situation monitor and assessment Command and Control (C2) of space forces/threat warning develoment C2 of space forces/space battle manager to provide theater situational awareness C2 of space forces/space operations planning and develoment of a Space Tasking Order (STO) Total	ase developn nitor and ass space forces manager to tions plannii	nent essment s/threat warr provide thee ng and devel	se development nitor and assessment space forces/threat warning develoment manager to provide theater situational a ions planning and develoment of a Spac	nent al awarenes Space Taskii	s ng Order (S7	(0			
Pŗ	Project 674806			Page 1	Page 16 of 20 Pages	SS			ŭ	hibit R-2A (Exhibit R-2A (PE 0305906F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	N SHEET (3-2A Exh	libit)	á	DATE February 2000	2000
800 07	вирсет Астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305906F NCM(AND TITLE . NCMC -	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	stem		PROJECT 674806
9	A. Mission Description Continued						
53	1 (\$ in Thousar						
36	\$3,319 Enterprise intrastructure database development \$3,766 Fused battlespace picture situation monitor and assessment	Sesment					
3	_	11101116000					
9		theater situationa	l awareness				
39	\$1,10 C.2 of space forces/space operations planning and development of a Space Tasking Order (STO) \$15,173 Total	development of a !	Space Tasking	Order (STO)			
3	B. Project Change Summary This project was a new start in FY00. There have been a number of sche	a number of schedule changes which are reflected and explained in Section F. Schedule Droffle	hare reflected	and explained	in Section E	Schedule Profile	
Œ				Towns dub num	in seemon E.	ociicadie i ioiile.	
9	C. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000 EY 2001 Actual Resimpte Extinutes	7	FY 2003	FY 2004	EY 2005	Cost to	Total Cost
5	<u>rstmans</u> ject 673880.	Estimate	Estimate	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
<u> </u>	D. Acquisition Strategy N/UWSS will employ an evolutionary spiral development acquisition strategy which enables rapid development and fielding of an initial capability in response to a validated requirement. Using a spiral development acquisition strategy is important in a hardware/software intensive C2 system where 18-24 month technology cycles	egy which enable: important in a hare	s rapid develor lware/software	oment and field e intensive C2	ding of an initia	al capability in resp 18-24 month techn	onse to a
	аге сопппоп.						
	N/UWSS will utilize a performance-oriented contracting strategy with industry, evolving toward Total System Performance Responsibility (TSPR). All major contracts related to this project will be awarded after full and open competition.	ustry, evolving tov	vard Total Sys	ıtem Performaı	nce Responsibi	lity (TSPR). All m	ajor contracts
3	(U) E. Schedule Profile						
		FY 1999		EY 2000	000	FY 2001	100
ď	Project 674806	Page 17 of 20 Pages				Exhibit R-2A (PE 0305906F)	0305906F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE	February 2000
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC - TW/AA System	PROJECT 674806
 (U) E. Schedule Profile Continued 1 (U) Interim Integrated Space Command and Control (ISC2) Contract 	EY 1999 2 3 4 1 2 3 4 1	EX 2001 2 3 4
Award (U) ECZ Contract Award X X X X X X X X X X X X X X X C2 of Space Forces incremental delivery * Indicates task completion/X indicates scheduled task. - ISCZ initial contract award will be in Feb 00 to two contractors followed by a rolling down select with final award in Aug 00 to one contractor. - ISC2 initial contract award silpped by the scheduled task (X) for ISC2 contract award because at Hat time ISC2 contract was to be a single source contract. - ISC2 contract award slipped 3 months from FY00 PB (Feb 99) schedule profile. The dark IRFP was released in Nov 99. The final RPP was held until critical processes (requirements, funding, test, training) could be worked and agreed to between AFSPC and PEO for C2 resulting in the delay of the final RPP release resulting in a concurrent slip to final award. - Loue to the delay of the ISC2 contract award, an interim contractor has been hired to begin the Space Batle Management Core System (SBMCS) work which results in the C2 of Space Forces incremental delivery beginning earlier on the schedule profile. The enterprise database and fissed batlespace picture incremental delivery line in an effort to accurately portray deliveries of all space products.	X X X X X X X X X X X X X X X X X X X	or. e a single source contract. held until critical nal RFP release resulting CS) work which results in cremental delivery lines
Project 674806	Page 18 of 20 Pages Exhib	Exhibit R-2A (PE 0305906F)

	RDT&F PROGRAM ELEMENT	AM FI E	MENT/PE	T/PROJECT CO	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	8
S BO	BUDGET ACTIVITY 7 Onorational System Development	emuoleva			PE NUMBE 030590	PE NUMBER AND TITLE 0305906F NCMC - TW/AA Svstem	- TW/AA	Svstem		9	PROJECT 674806
E	A. Project Cost Breakdown (\$ in Thousands)	in Thousand	<u> </u>				FY 1999	666	FY 2000		FY 2001
	Major Contract]	0	5,460	3 0	11,541
3	Award/Performance Fee							0	500	0	1,731
5,5	FFRDC A&AS							00	1,115	ט פ	520
333	Program Support Total							0 0	250 8,765	0	156 15,173
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	and Plannin	g Information	(S in Thousand	ଷ						
3	Performing Organizations:										
	Contractor or Contractor Or	Contract Method/Type	Award or	Performing	Project						
		or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FX 2001	Complete	Program
	Product Development Organizations	ations CP/AF	Δ11σ 00	A/Z	A/Z	С	0	400	13,272	Continuing	TBD
		MIPR	Jan 00	N/A	N/A	0	0	5,560		Continuing	TBD
	Development & Integration										
	Contractor										
	and Management Org	nizations	9	A1/A	NI/A	c	c	1 440	1 225	Continuing	TRD
		CP/FF	Jan 00 Ian 00	€ /N	N/A	o c	o C	1,115	520	Continuing	TBD
	Program Support	N/A	Jan 00	N/A	N/A	0	0	250	156	Continuing	TBD
	on Organizat	suo									
	None										
	Project 674806			Page	Page 19 of 20 Pages	ıges			Exhit	Exhibit R-3 (PE 0305906F)	05906F)
	reject to toole										

RDT&E PROGRAM ELEMENT		/PROJECT CO	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
вирсет астилту 07 - Operational System Development	ment		PENUMBER AND TITLE 0305906F NCMC - TW/AA System	- TW/AA S	system		9. 9.	PROJECT 674806
(U) Government Furnished Property: Contract Method/Type Item Or Funding Description Vehicle Product Development Property None Support and Management Property None Test and Evaluation Property	Award or Obligation Date	Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project			Total Prior to FY 1999 0 0 0	Budget EY 1999 0 0 0	Budget 5,960 2,805 8,765	Budget EY 2001 13,272 1,901 15,173	Budget to Complete TBD TBD TBD TBD	Total Program TBD TBD TBD
Project 674806		Page	Page 20 of 20 Pages			Exhib	Exhibit R-3 (PE 0305906F)	5906F)

PE NUMBER: 0305910F PE TITLE: SPACETRACK

	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	USTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - 0	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305910F SPAC	AND TITLE F SPAC	PE NUMBER AND TITLE 0305910F SPACETRACK				
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	42,410	54,010	2,553	583	0	0	0	0	TBD
674241	Advanced Electro Optical System (AEOS)	23,464	20,660	0	0	0	0	0	0	192,411
674279	Have Stare Radar	18,946	27,253	1,387	0	0	0	0	0	TBD
674791	GEODSS Sustainment	0	6,097	1,166	583	0	0	0	0.	7,846
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

NOTE: Have Stare total cost not available since it was transferred from Intelligence budget in FY 93

(U) A. Mission Description

The SPACETRACK program element represents a worldwide Space Surveillance Network (SSN) of dedicated, collateral, and contributing electro-optical, passive radio frequency (RF) and radar sensors. The SSN is tasked to provide space object identification and cataloging, satellite attack warning, timely notification to U.S. forces of satellite fly-over, space treaty monitoring, and scientific and technical intelligence gathering. The continued increase in satellite and orbital debris populations, as well and future requirements and ensure their cost-effective supportability. The resources and responsibility for completing the HAVE STARE Radar System development as the increasing diversity in launch trajectories, non-standard orbits, and geosynchronous altitudes, necessitates continued modernization of the SSN to meet existing were transferred to SPACETRACK from an intelligence program per Congressional direction in FY93.

The GEODSS Sustainment project, a new effort, will develop and field ten Charge Coupled Device (CCD) Cameras for the Ground-Based Electro-Optical Deep Space Surveillance (GEODSS) System, located at Socorro, NM; Diego Garcia, Indian Ocean; and Maui, Hawaii. In addition, this project will fund the purchase and integration of ten Modular Precision Angular Control Systems (MPACS)

(U) B. Budget Activity Justification

All of these projects are Budget Activity 7, Operational Systems Development, because they involve development of or modifications to operational sensor network

Page 1 of 16 Pages

Exhibit R-2 (PE 0305910F)

PE NUMBER AND TITLE		RDT&E BUDGET ITEM JUSTIFIC	STIFICATION SHEET (R-2 Exhibit)	it)	DATE February 2000	ry 2000
C. Program Change Summary (S in Thousands) FY 2000 FY 2000 Pervious President's Budget (FY 2000 PBR) 45,375 54,806 1,178 Appropriated Value 45,832 54,806 1,178 Appropriated Value 45,832 54,806 1,178 a. Congressional General Reductions 1,409 -297 -297 b. Small Business Innovative Research -1,319 -297 -427 c. Ominius or Other Above Threshold Reprogram -1,319 -297 -427 c. Rescissions c. Rescissions 0.0her -427 1,375 Current Budget Years Since FY 2001 PBR 42,410 54,010 2,553 Current Budget Shmirity You'd PBR 42,410 54,010 2,553 Current Budget Shmirity You'd PBR A0,010 2,553 Current Budget Shmirity Program Changes: Significant Program Changes: Significant Program Changes: Significant Program Changes: Exhibit Res Congress. Exhibit Res Congrams Budget in FY93 at the direction of Congress.	8UD 07 .	вет астилту Operational System Development	PE NUMBER AND TITLE 0305910F SPACETR	ZACK		
Previous President's Budget (FY 2000 PBR) 45,375 54,806 1,178 Appropriated Value 45,832 54,806 1,178 Adjustments to Appropriated Value 45,832 54,806 1,178 a. Congressional/General Reductions 1-1,409 -297 -227 -227 b. Small Business Innovative Research -237 -227 -227 c. Ormulus or Other Above Threshold Reprogram 1,1,319 c. Rescissions 1.1319 c. Rescissions 1.1375 Current Budget Years Since FY 2000 PBR 42,410 54,010 2,553 NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress. Significant Program Changes: Significant Program Changes:	3	C. Program Change Summary (\$ in Thousands)	FV 1000	EV 2000	EV 2001	
Appropriated Value Adjustments to Appropriated Value Accordinations Congressional/General Reductions Small Business Innovative Research Commibus or Other Above Threshold Reprogram Commibus or Other Above Threshold Reprogram A Below Threshold Reprogram Commibus or Other Above Threshold Reprogram A Becissions Confler Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR Current Budget SubmirfFY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes:	5	Previous President's Budget (FY 2000 PBR)	45.375	54.806	1.178	TRD
Adjustments to Appropriated Value Adjustments to Appropriated Value Longuessional/General Reductions b. Small Business Imovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram c. 237 Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Significant Program Changes:	3	Appropriated Value	45,832	54,806	2.66	
a. Congressional/General Reductions b. Small Business Innovative Research c. Ormitus or Other Above Threshold Reprogram c. Ormitus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Submid'FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages	9	Adjustments to Appropriated Value				
b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram -1,319 e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR Adjustments Budget SubmirFY 2001 PBR Current Budget SubmirFY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages		a. Congressional/General Reductions	-457	-72		
c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Resissions f. Other Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages		b. Small Business Innovative Research	-1,409			
d. Below Threshold Reprogram e. Rescissions e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Significant Program Changes: Page 2 of 16 Pages		c. Omnibus or Other Above Threshold Reprogram		-297		
e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Adjustment Budget Submit/FY 2001 PBR Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Significant Program Changes:		d. Below Threshold Reprogram	-1,319			
Adjustments to Budget Years Since FY 2000 PBR Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages		e. Rescissions	-237	-427		
Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages		f. Other				TBD
Current Budget Submit/FY 2001 PBR NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages	9	Adjustments to Budget Years Since FY 2000 PBR			1,375	
NOTE: Total cost data not available. Have Stare program transferred from the intelligence budget in FY93 at the direction of Congress Significant Program Changes: Page 2 of 16 Pages	9	Current Budget Submit/FY 2001 PBR	42,410	54,010	2,553	TBD
Significant Program Changes: Page 2 of 16 Pages	-	NOTE: Total cost data not available. Have Stare program trans	erred from the intelligence budget in FY9.	3 at the direction c	of Congress.	
	9	Significant Program Changes:				
			Page 2 of 16 Pages		Exhibit R-2 (I	PE 0305910F)

	RDT&E BUDGET ITEM JU	STIFIC,	ATION S	STIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	Februa	February 2000
BUDG 07	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0305910F SPAC	AND TITLE F SPAC	AD TITLE SPACETRACK				PROJECT 674241
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674241	.1 Advanced Electro Optical System (AEOS)	23,464	20,660	0	0	0	0	0	0	192,411
9	A. Mission Description The Advanced Electro-Optical System (AEOS) is a 3.67 meter telescope addition to the Maui Space Surveillance System (MSSS). The AEOS program was initiated in FY91 per Congressional direction. Congress continued to appropriate funding for this project in FY93, FY94, FY95, and FY96. DoD budgeted for the continuation of AEOS in FY97, FY98, FY99 and in FY00. This project is in Budget Activity 7, Operational Systems Development, because it involves sustained engineering support for development of, or modifications to, an operational SPACETRACK network site. Beginning in FY01, the Air Force Research Laboratory (AFRL) will assume management of AEOS, and funding will appear in PE 63444, Budget Activity 3, Advanced Technology.	3.67 meter te led to approp lject is in Buc nal SPACETI E 63444, Bu	lescope addi nriate funding iget Activity RACK netwo	tion to the Mg for this pro 7, Operation ork site. Beg	laui Space S ject in FY9; nal Systems ginning in F d Technolog	urveillance 3, FY94, FY Developme Y01, the Air	System (MS 95, and FY9 nt, because Force Rese	SSS). The A 96. DoD buo it involves su arch Labora	EOS progra igeted for th istained eng tory (AFRL)	.67 meter telescope addition to the Maui Space Surveillance System (MSSS). The AEOS program was initiated in ed to appropriate funding for this project in FY93, FY94, FY95, and FY96. DoD budgeted for the continuation of ect is in Budget Activity 7, Operational Systems Development, because it involves sustained engineering support al SPACETRACK network site. Beginning in FY01, the Air Force Research Laboratory (AFRL) will assume 63444, Budget Activity 3, Advanced Technology.
999999	\$\frac{\text{FY 1999 (\$\xi\$ in Thousands)}}{\text{Solution}}\$\$14,570 Continued integration & test of Radiometer, Longwave Infrared Imager (LWIR) and Adaptive Optics (A/O) System \$1,713 Completed the MSSS Observatory Control System (OCS) \$5,841 R&D upgrades to the MSSS, operational transition of AEOS, visitor programs & purchase spares \$1,340 University of Hawaii (UH) spectrograph and atmospheric characterization research \$23,464 Total	of Radiomete atory Contro operational t ectrograph a	r, Longwave I System (Od ransition of 1	e Infrared Im CS) AEOS, visito ric character	ager (LWIR r programs ization rese	() and Adapt & purchase arch	ive Optics (spares	A/O) Systen	e	
5555 5	FY 2000 (\$ in Thousands) \$10,175 Complete site testing and integration of the adaptive optics system; procurement of spares; transition of system from AFSPC to AFRL \$2,685 Complete integration and test upgrade to MSSS Observatory Control System \$7,800 Continue R&D and upgrades to MSSS (P3I items) such as AEOS/OCS enhancements to instrumentation and coude beam; advanced dimaging techniques and tool development \$20,660 Total	gration of th upgrade to N to MSSS (P? levelopment	e adaptive op ASSS Obser II items) sucl	gration of the adaptive optics system; procurem upgrade to MSSS Observatory Control System to MSSS (P3I items) such as AEOS/OCS enhan evelopment	procuremen ol System OCS enhanc	nt of spares; ements to in	transition o	f system fror on and coude	n AFSPC to beam; adva	gration of the adaptive optics system; procurement of spares; transition of system from AFSPC to AFRL upgrade to MSSS Observatory Control System to MSSS (P3I items) such as AEOS/OCS enhancements to instrumentation and coude beam; advanced daylight evelopment
993	FY 2001 (\$ in Thousands) \$0 No Applicable \$0 Total									
<u>C</u>	Project 674241		Page	Page 3 of 16 Pages	S			ΩÎ	chibit R-2A	Exhibit R-2A (PE 0305910F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JUSTIFICATIO	N SHEET (I	R-2A Exh	nibit)	Ď	DATE Februa	February 2000
800 07	вирсет астилту 07 - Operational System Development		PE NUMBER AND TITLE 0305910F SPAC	AND TITLE F SPACETRACK	FRACK			PROJECT 674241
9	B. Project Change Summary Note: The Radiometer Acceptance, Long Wave Imager (LWI) and Observatory Control System (OCS) delays were due to software/hardware failures during Site Acceptance Testing. The Adaptive Optics SAT slip is due to technical software problems. The software/hardware problems are corrected and the program is on schedule for a Jun 00 DT&E completion.	nager (LWI) and Obser ip is due to technical so	r (LWI) and Observatory Control System (OCS) delays were due to software/hardware failures during Sitr due to technical software problems. The software/hardware problems are corrected and the program is on	stem (OCS) de The software/	elays were due hardware probl	to software/ha lems are correc	udware failures d	turing Site ram is on
9	of The			FY 2003	FY 2004	EY 2005	Cost to	Total Cost
99	AF RDT&E Other APPN None	<u>Estimate</u> 4,625	4,627	<u>Estimate</u> 4,625	Estimate 4,622	<u>Estimate</u> 4,617	Complete Continuing	TBD
<u> </u>	D. Acquisition Strategy All major contracts were awarded after full and open competition.	en competition.						
9	E. Schedule Profile	_	EY 1999	4	EY 2000	0000	, E	EV 2001
55555	Radiometer Acceptance Long Wave Imager Acceptance Observatory Control Sys Acceptance Adaptive Optics System Acceptance AEOS DT&E Complete * indicates task completion/X indicates planned task	Ä		· * *	* *			
<u>.</u>	Solve EVACA 4	£						
r.	Project 6/4241	ď	Page 4 of 16 Pages				Exhibit R-2A (PE 0305910F)	⊃E 0305910F)

	RDT&E PROGRAM ELEMENT/PROJECT	RAM ELE	MENT/PR		COST BF	BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
92 - (0	BUDGET ACTIVITY 07 - Operational System Development	Developme	nt		PE NUMBER AI 0305910F		ID TITLE SPACETRACK			В В	РКОЈЕСТ 674241
(n)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp		-		į	000	200 231	ç	1000
99	Congressionally directed level of effort for AEOS Maui facilities expansion Total	el of effort for A	EOS Maui facil	ities expansion			23, 23,	23,464 23,464 23,464	20,660 20,660 20,660	2100	0 0 0
(E)	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	(S in Thousand	ล						
(E)	Performing Organizations:										
<i>,</i>	Covernment	Contract Method/Type	Award or	Performing	Project						
<u>⊶</u> <	Performing	or Funding	<u>Obligation</u>	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
7	Activity Product Development Organizations	<u>venicie</u> zations	<u>Daic</u>	EAL	EAL	10 F Y 1999	FY 1999	F X 7000	F X 2001	Complete	Program
1 124	Kiewit Pacific Co	C/FFP/AF	Aug 94	21,000	22,979	22,979	0	0		0	22,979
× (Kapolei, HI	7.47.0	10.50	000	23,413		c	ć		c	
, ב	Contraves USA Pittsburgh, PA	C/FFF/AF	Dec 91	73,000	23,413	23,413	-	>		0	23,413
124	ROSI	C/CPAF/AF	Aug 94	31,000	36,962	27,353	7,009	2,600	0	0	36,962
□	Danbury, CT										
<u> </u>	COMSAT RSI, Inc	C/FFP/AF	Aug 95	7,000	7,289	7,289	0	0	0	0	7,289
	Clarksburg, MD	H + / HIND/D	1.106	7	C	0,0	0	Č	•	c	1
4 W	Mission Kesearch Corp Santa Barbara, CA	C/CPIF/AF	ce inc	4,600	2,760	4,860	009	300	0	0	5,760
pr ₄ [Raytheon	C/CPIF/AF	Sep 95	5,800	9,023	6,948	1,700	375	0	0	9,023
-1 Ω	El Segundo, CA p.r.c	C/CDAE/AF	Sen 05	V /N	41 006	16 640	0 041	12 005	<	c	70 466
. X	Kibei, Maui, HI		CC doc	V/NI	41,000	10,040	1,741	13,005	>	>	40,400
24	RPS	C/CPAF/AF	Oct 90	N/A	41,006	12,933	0	0	0	0	12,933
<u>ر</u> بع	Kihei, Maui, HI UH*	C/CR/AF	Oct 96	3,400	3,665	1,700	1.340	625	0	0	3.665
4	Maui, HI										
Pro	Project 674241			Page	Page 5 of 16 Pages	ţes			Exhibi	Exhibit R-3 (PE 0305910F)	05910F)

Producery activation Producery Producery activation Producery activation Producery activation Producery		RDT&E PROGRAM ELEMENT		/PROJECT (COST BI	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
Performing Organizations Continued:	97 07	GET АСТИЛТY - Operational System Develop	ment		PE NUMB 03059		TRACK			9	ROJECT 74241
Support and Management Organizations N/A N/A 2.457 399 350 0 0 Logicon RDA C/CPAF/AF Oct 93 N/A N/A 3,360 0 0 0 0 Albuquerque, NM SS Oct 93 N/A N/A 1,676 250 300 0	(D)	Performing Organizations Continued: *Congressionally directed Spectrograph	Research/Atmosp	heric Characteriz	ation						
Logicon RDA		Support and Management Organizations									
Logicon RDA C/CPAF/AF Oct 93 N/A N/A 3,360 0 0 0 0 Antipotector, NA Antipotector, NA SS Oct 93 N/A N/A 2,566 250 300 0 0 0 0 Antipotector, NA Antipotector, NA N/A N/A N/A N/A 1,617 0 0 0 0 Abbuquerque, NA Askay Co.E SS 1an 95 N/A N/A N/A 1,617 0 0 0 0 Albuquerque, NA Askay Co.E N/A N/A N/A N/A N/A 1,617 0 0 0 0 Albuquerque, NA NA N/A N/A N/A N/A 1,617 0 0 0 0 Albuquerque, NA NA N/A N/A N/A N/A N/A 1,617 0 0 0 0 0 Albuquerque, NA NA N/A N/A </td <td></td> <td></td> <td></td> <td>N/A</td> <td>N/A</td> <td>2,457</td> <td>399</td> <td>350</td> <td>0</td> <td>0</td> <td>3,206</td>				N/A	N/A	2,457	399	350	0	0	3,206
Abbuqueque, NM MIT/LL S Systems Corp C C/CPFF/AF				N/A	N/A	3,360	0	0	0	0	3,360
Systems Corporated Systems Cor	<u> </u>		Oct 93	N/A	N/A	2,566	250	300	0	0	3,116
Albuquerque, NM				N/A	N/A	2,976	0	0	0	0	2,976
Haleakala, Maui, HI WIS NIA NIA NIA 10,937 150 150 0 0 Albuquerque, NM			Jan 95	N/A	N/A	1,617	0	0	0	0	1.617
MJS SS Oct 97 N/A N/A 150 150 0 0 0 Program Office Various N/A N/A N/A 10,937 2,075 2,075 0 0 0 Test and Evaluation Organizations N/A N/A N/A 10,937 2,075 2,075 0 0 0 Test and Evaluation Organizations N/A N/A N/A 10,937 2,075 2,075 0 0 0 Test and Evaluation Organizations N/A N/A N/A 10,937 2,075 2,075 0 0 0 Test and Evaluation Organizations N/A N/A N/A 10,937 2,075 2,075 0 0 Government Furnished Property: Method/Type Award or Method/Type Award or Date Da		kala, Maui, HI	•	;	į			,	, ,	, ,	
Albiqueque, NM		,	Oct 97	N/A	N/A	259	150	150	0	0	529
Test and Evaluation Organizations None		Σ	N/A	N/A	N/A	10,937	2,075	2,075	0	0	15,087
Government Furnished Property: Contact Contact Contact Contact Americal Method/Type Award or Award or Method/Type Delivery Total Prior Budget Budget Budget Budget to Description Vehicle Date Date Date FY 2000 FY 2001 Complete Product Development Property None Support and Management Property Amage of 16 Pages Amage of 16 Pages Amage of 16 Pages Exhibit R-3 (PE 03058)		Test and Evaluation Organizations None									
Page 6 of 16 Pages	<u> </u>	Government Furnished Prop Item Description Product Development Property None Support and Management Prop None Test and Evaluation Property None	• • • •	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Page 6 of 16 Pages											
	1.1.	Project 674241		Pa	ge 6 of 16 Pa	ges			Exhibi	it R-3 (PE 03	05910F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DJECT COST BREAKDON	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	ETRACK			9	PROJECT 674241
	Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals Cultotal December	124 115	20 500	17 785	1007 X I	Complete	162 490
Subtotal Support and Management	24.172	2,874	2,875	0	0	29,921
Subtotal Test and Evaluation		· • •				`
Total Project	148,287	23,464	20,660	0	0	192,411
Project 674241	Page 7 of 16 Pages			Exhib	Exhibit R-3 (PE 0305910F)	05910F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	ATION S	SHEET (R-2A E	xhibit)		DATE	February 2000	y 2000
8000 07 -	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER AN 0305910F	PE NUMBER AND TITLE 0305910F SPAC	AD TITLE SPACETRACK				РВОЈЕСТ 674279
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674279	79 Have Stare Radar	18,946	27,253	1,387	0	0	0	0	0	TBD
(U)	NOTE: Have Stare total cost not available since it was transferred from intel budget in FY93 A. Mission Description The HAVE STARE radar (FPS-129) was transferred from the intelligence budget in FY93 at the direction of Congress. The Air Force has identified a requirement for the HAVE STARE radar and has programmed funding in this program element to complete development and to deploy the system. The radar is a high resolution X-band tracking and imaging radar with a 27 meter mechanical dish antenna. The system is being deployed to Varda, Norway, as a dedicated space surveillance sensor to support the mission of space object catalog maintenance and mission payload assessment. Progress in FY 99 was completion of the radar tower, installation of antenna, radome, and most radar electronics. The radar will not be a fully integrated element of the Missile Warning Network. The radar will only be integrated with the Space Control Center (Cheyenne Mtn AS, CO) and the Alternate Space Control Center (Dalgren Naval Surface Warfare Center, VA)	sferred from from the inte ling in this po nechanical di nance and m lar will not b	erred from intel budget in FY93 om the intelligence budget in FY in this program element to conchanical dish antenna. The systence and mission payload assessing interpretated elements of the Alternate Space Control Cei	t in FY93 dget in FY95 lent to comp The system ad assessme agrated elem ontrol Cente	s at the direc lete develop is being der nt. Progress ent of the M	erred from intel budget in FY93 om the intelligence budget in FY93 at the direction of Congress. The Air Force has in this program element to complete development and to deploy the system. The chanical dish antenna. The system is being deployed to Vardø, Norway, as a dedi nnce and mission payload assessment. Progress in FY 99 was completion of the rar will not be a fully integrated element of the Missile Warning Network. The rada the Alternate Space Control Center (Dalgren Naval Surface Warfare Center, VA)	gress. The deploy the strda, Norwa as completion in generate Caracter Carac	Air Force has system. The y, as a dedict on of the rad on of the radar center, VA)	s identified a radar is a hig ated space su ar tower, inst	requirement for the resolution recillance sensor allation of integrated with
999999	\$\text{\$\text{EY 1999 (\$ \text{in Thousands})}\$}\$ \$1,200 \text{Continued radar development inc} \$5,600 \text{Continued site preparations} \$11,224 \text{Deployed and installed program of the continued Logistics and training} \$18,946 \text{Total}\$	incremental funding m equipment ng	funding							
<u> </u>	FY 2000 (\$\\$\sin Thousands\) \$11,900 Complete facility preparation \$7,879 Complete system installation, integration, and checkout \$5,084 Conduct formal system tests \$2,150 Continue Logistics and training \$240 Demolish test facility and cleanup test site \$27,253 Total	integration, s g nup test site	ınd checkou	· •						
0.	Project 674279		Page	Page 8 of 16 Pages	SS			ũ	hibit R-2A (Exhibit R-2A (PE 0305910F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	GET ITEN	1 JUSTIFI	CATION	SHEET (I	3-2A Exh	nibit)	ā	DATE Febru	February 2000	
80DC 07 -	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305910F SPAC	AND TITLE - SPACETRACK	FRACK			PROJECT 674279	:ст 79
9	A. Mission Description Continued	ned								:	
99999	FY 2001 (\$\\$\\$\\$\\$\\$\\$\\$\ \ \ \ \ \ \ \ \ \ \ \	dds) Complete system development Complete testing Accomplish residual logistics an Total	pment jistics and training	би							
9	B. Project Change Summary FY01: Funds added to finish installation and checkout of radar in Vardo, Norway. Projected schedule slip (Section E): Recent accident (Nov 99) occured in Vardo, Norway when high winds blew of the Radome. The projected schedule months. Initial Operational Capability (IOC) is now scheduled for 4th Qtr of FY01and Full Operational Capability (FOC) is scheduled for 3rd Qtr FY02	tallation and ch E): Recent acc ability (IOC) is	neckout of radar sident (Nov 99) now scheduled	in Vardo, Noi occured in Ve I for 4th Qtr of	of radar in Vardo, Norway. Iov 99) occured in Vardo, Norway when high winds blew of the Radome. The projected schedule slip is 6-8 neduled for 4th Qtr of FY01and Full Operational Capability (FOC) is scheduled for 3rd Qtr FY02.	vhen high win Operational (ds blew of the Capability (FO	Radome. The C) is schedule	projected sche d for 3rd Qtr F	dule slip is 6- Y02.	∞
<u> </u>	C. Other Program Funding Summary (\$ in Thousands) EX 1999 EX 2000 Actual Estimate	mmary (\$ in T FY 1999 Actual	Chousands) EX 2000 Estimate	FY 2001 Estimate	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Complete Complete		Total Cost
<u> </u>	AF RDT&E Other APPN Operations and Maintenance 49,412 51,485 AF* * Includes other projects in the Spacetrack program element	49,412 Spacetrack prog	51,485 gram element	52,634	50,860	51,407	53,619	57,898	Continuing		
9	D. Acquisition Strategy The existing contract with Raytheon was modified in the third quarter of FY98 for the dismantling, shipment, and installation of the radar, and will be extended until FY01	eon was modifi	ied in the third (quarter of FY9)8 for the dism	antling, shipm	ent, and install	ation of the ra	dar, and will be	e extended un	ı:i
9	E. Schedule Profile			-	FY 1999	4	EXZ	EX 2000	-	FY 2001	4
2333	Radar dismantled at Test Site (Vandenberg AFB) Begin Installation at Operational Site (Vardø, Norway) Formal System Testing Completed System Initial Operational Capability	'andenberg AF Site (Vardø, N ed nility	B) lorway)	•		- *			•		× ×
<u> </u>	Project 674279			Page	Page 9 of 16 Pages				Exhibit R-24	Exhibit R-2A (PE 0305910F)	10F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A Exhibit)	DATE February 2000
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT 674279
(U) E. Schedule Profile Continued 1 * indicates completed event/X planned event.	FY 1999 EY 2000 2 3 4 1 2 3	FY 2001 4 1 2 3 4
Project 674279	Page 10 of 16 Pages	Exhibit R-2A (PE 0305910F)

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT C	OST BE	COST BREAKDOWN (R-3)	WN (R-3)		DATE FA	February 2000	5
910 010 010	BUDGET ACTIVITY 07 - Operational System Development	Developmen			PE NUMBER AI	PE NUMBER AND TITLE 0305910F SPACE	SPACETRACK			6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PROJECT 674279
	A. Project Cost Breakdown (\$ in Thousands)	ı (\$ in Thousand	IS)								
(I)	System develonment						FY 1999	1 000	FY 2000	9 1 ~	EY 2001
) E	Site preparation and support						í, ý	5,000	10 900	. ~	· C
9	Deployment, installation and checkout	checkout					ဂ် တိ	9.894	7.229		0
3	Logistics and training							922	2,000		0
9	Formal system testing							0	4,634	4	0
5	Complete open development and testing items SPO support	and testing item	S				,	0 2,130	0 2.290	0	587
33	Take down test facility and cleanup test site Total	cleanup test site					18,	0 18,946	, 200 27,253		0 1,387
3	B. Budget Acquisition History and Planning Inform	ory and Plannin	g Information	ation (\$ in Thousands)	(3)						
3	Performing Organizations:										
	Contractor or	Contract									
	Government	Method/Type	Award or	<u>Performing</u>	Project						
	Performing	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	EX 1999	EX 2000	FY 2001	Complete	Program
	Product Development Organizations	izations	,	,	,	,					
	Raytheon Elec Sys	C/CPIF/AF	Mar 91	26,520	26,520	3,022	10,494	12,032	200	0	26,048
	Site Preparation	Varions	Various	N/A	N/A	2,100	2,000	10,850	0	0	17,950
	Misc	Various	Various	N/A	N/A	563	734	1,519	0	0	2,816
	Total prior to FY 1999 data not available; program transferred from the intelligence budget in FY93 at the direction of Congress	not available; pro	gram transferre	d from the intell	ligence budg	çet in FY93 at 1	he direction o	of Congress			
	Support and Management Organizations	ganizations									
	MITRE	SS/PR	Oct 99	N/A	N/A	800	728	800	250	0	2,578
	A&AS	C/PR	Various	N/A	N/A	1,123	954	800	587	0	3,464
	Lincoln Lab	SS/PR	Oct 99	N/A	N/A	230	145	0	0	0	375
	Program Office	Various	Various	N/A	N/A	354	451	069	50	0	1,545
	Misc	Various	Various	N/A	N/A	24	440	295	0	0	1,026
т	Project 674279			Page	Page 11 of 16 Pages	ges			Exhibit	Exhibit R-3 (PE 0305910F)	35910F)

	RDT&E PROGRAM ELEMENT	T/PROJECT COST BREAKDOWN (R-3)	BREAKDOV	VN (R-3)		DATE Fe	February 2000	
80DC 07 -	вирсет аститу 07 - Operational System Development	PE N 030	PE NUMBER AND TITLE 0305910F SPACE	ND TITLE SPACETRACK			.9 6.	PROJECT 674279
(D)	Performing Organizations Continued: Test and Evaluation Organizations None							
9	Government Furnished Property: Contract Contract Method/Type Award or Item or Funding Description Vehicle Product Development Property None	or ion Delivery Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Support and Management Property None Test and Evaluation Property							
	Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation		Total Prior to FY 1999 5,685 2,531	Budget FY 1999 16,228 2,718	Budget FY 2000 24,401 2,852	Budget FY 2001 500 887	Budget to Complete 0	Total Program 46,814 8,988
	Total Project Total Project Have Stare total cost data not available; program transferred from the intelligence budget in FY93 at the direction of Congress. Prior years data reflects costs since FY93.	sferred from the intelligence l	8,216 budget in FY93 at the	18,946 e direction of	27,253 Congress. Pri	1,387 ior years data	0 reflects costs	55,802 ince
۵	Project 674279	Page 12 of 16 Pages	16 Pages			Exhibi	Exhibit R-3 (PE 0305910F)	5910F)

	RDT&I	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	ATION S	энеет (R-2A E	xhibit)		DATE	Februa	February 2000
9000 07 -	вирбет Астічіту 07 - Operational Sy s	вирсет аститу 07 - Operational System Development			РЕ NUMBEF 030591 0	PE NUMBER AND TITLE 0305910F SPAC	PE NUMBER AND TITLE 0305910F SPACETRACK				РВОЈЕСТ 674791
	COST (\$ i	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674791	11 GEODSS Sustainment	nent	0	6,097	1,166	583	0	0	0	0	7,846
Note	Note: This was a new start in FY00.	in FY00.									
9	A. Mission Description The GEODSS Sustainm	4. Mission Description The GEODSS Sustainment project begins in FY00 to develop and field ten Charge Coupled Device (CCD) Cameras for the Ground-Based Electro-Optical Deep Space	develop and	field ten CP	narge Couple	ed Device ((CD) Camer	ras for the G	round-Basec	i Electro-Op	rtical Deep Space
	Surveillance (GEOD! Optical, Command, C	Surveillance (GEODSS) System, located at Socorro, NM; Diego Garcia, Indian Ocean; and Maui, Hawaii. The project includes associated software changes to the Optical, Command, Control & Communications (OC3F) at Edwards AFB, CA. In addition, this project purchases and integrates ten replacement Modular Precision	NM; Diego (3F) at Edwar	Garcia, India ds AFB, CA	an Ocean; an A. In additio	ıd Maui, Hav n, this proje	waii. The pr ct purchases	oject includ and integra	es associatec tes ten repla	i software ch cement Mod	hanges to the Iular Precision
	Angular Control Syst them at the test unit a	Angular Control Systems (MPACS) and funds associated logistics requirements, technical data and training. The project develops the first components and installs them at the test unit at site 1, Socorro, NM. Follow-on CCD cameras and MPACS will be produced and installed using Space Track Modification funds (BP83). This	ated logistics n CCD came	s requiremer eras and MP	nts, technical ACS will be	l data and tra produced a	aining. The	project deve using Space	slops the firs Track Modi	t component ification fun	ts and installs ds (BP83). This
	project, with the receicamera replacement, any vendor and the conserse the space order	project, with the recently completed GEODSS Modification Program, will result in more than double the throughput and search rate of the legacy system. Without CCD camera replacement, the entire GEODSS system will be unusable in the FY02 time-frame, as mission critical Ebsicon tubes are no longer manufactured or supported by any vendor and the current supply of spares will run out by the end of 2001. This would result in loss of geosynchronous space situational awareness and less ability to	ication Progr be unusable out by the en	am, will res in the FY02 d of 2001.	ult in more t time-frame This would	than double , as mission result in loss	the throught critical Ebsi s of geosyncl	out and seard Icon tubes ar hronous spa	th rate of the re no longer ce situationa	: legacy systemanufacture Il awareness	cation Program, will result in more than double the throughput and search rate of the legacy system. Without CCD be unusable in the FY02 time-frame, as mission critical Ebsicon tubes are no longer manufactured or supported by ut by the end of 2001. This would result in loss of geosynchronous space situational awareness and less ability to
999	EX 1999 (\$ in Thousands) \$0 Not	ands) Not Applicable Total									
9	Q.	Lotat									
<u> </u>	EY 2000 (\$ in Thousands) \$2,179 Beg \$1,600 Beg \$1,000 Des \$1,318 Dev	ands) Begin CCD design Begin camera design Design MPACS Develop Test bed at Site 1, Socorro, New Mexico	сопо, New Л	<i>d</i> exico							
55555	FY 2001 (\$ in Thousands) \$166 Stan \$500 Cor \$500 Tes	ands) Stand-up and begin operational use of Test Bed at Site 1, Socorro, New Mexico Complete CCD camera design Test prototype camera / MPACS	l use of Test	Bed at Site	1, Ѕосопо,]	New Mexico	0				
<u>P</u>	Project 674791			Page 1	Page 13 of 16 Pages	Sa			Ä	hibit R-2A (Exhibit R-2A (PE 0305910F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	TION S	HEET (F	8-2A Ext	nibit)	DATE	TE February 2000	v 2000
BUD(07	вирсет астіліту 07 - Operational System Development		PE NUMBER AND TITLE 0305910F SPAC	ND TITLE SPACETRACK	TRACK			PROJECT 674791
9	B. Project Change Summary This project was reported as a new start in FY00.							
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Ferimate Fer	FY 2001 Estimate	FY 2002 Ferimate	FY 2003	FY 2004	FY 2005 Estimate	Cost to	Total Cost
999	inment project only	9,110	8,784	3,034	Appropriate	Annuar	0	20,928
9	D. Acquisition Strategy The contract for the GEODSS Sustainment project will be awarded	after full an	be awarded after full and open competition.	etition.				
<u>(5)</u>	E. Schedule Profile		FV 1999		пV	FV 2000	77	EV 2001
555555	Contract Award Preliminary Design Review Critical Design Review Test Bed Standup Prototype Mod Kit Test Site 1 Mod Kit (1st article) in production * indicates completed event/X indicates planned event Operational acceptance of 1st unit at Site 1 is Aug 02	-	3	4	1 × 2	ъ х 4 х	x x	ъ ×
۵	Project 674791	Page 14	Page 14 of 16 Pages				Exhibit R-2A (PE 0305910F)	PE 0305910F)

	RDT&E PROGRAM ELEMEN	RAM ELE		I/PROJECT C	OST BF	COST BREAKDOWN (R-3)	NN (R-3)		DATE Fe	February 2000	8
800 01	вирдет астіvіту 07 - Operational System Development	Developme	nt		PE NUMBER AI 0305910F		ID TITLE SPACETRACK			9	PROJECT 674791
(£)	A. Project Cost Breakdown (\$ in Thousands)	<u>(\$ in Thousanc</u>	ds)				FY 1999	666	FY 2000	Ç	FV 2001
99999	System Engineering Hardware Development Software Development Program Office Support Total							00000	1,818 1,818 1,766 600 1,913 6,097	7 3 0 6 8 E	200 200 666 300 0
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	g Informatio	n (S in Thousand	ds)						
<u> </u>	Performing Organizations: Contractor or Government Performing Activity Product Development Organizations	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Prime Contractor	TBD	Feb 00	TBD	6,015	0	0	4,184	1,166	583	5,933
	Support and Mahagement Organizations MITRE SS/PR MITM incoln 1 sh	SS/PR	Jan 00	TBD	750	00	0 0	750	0 0	0 0	750
	A&AS	C/PR	Jan 00		500	000		200 200	000		200
	Other Support <u>Test and Evaluation Organizations</u> None	v arious <u>itions</u>	Jan 00	Og I	163	Þ	•	163	Þ	Þ	163
<u> </u>	Government Furnished Property: Control Meth Item Description Vehic None	perty: Contract Method/Type or Eunding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Project 674791			Page	Page 15 of 16 Pages	ges			Exhibi	Exhibit R-3 (PE 0305910F)	35910F)

RDT&E PROGRAM ELEMENT/PROJ	/PROJECT COST BREAKDOWN (R-3)	Z (R-3)		DATE Fe l	February 2000	
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	RACK			PR 67	PROJECT 674791
(U) Government Furnished Property Continued: Support and Management Property None Test and Evaluation Property None						
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation	<u>Total Prior</u> to FY 1999 0 0	<u>Budget</u> <u>FY 1999</u>	Budget FY 2000 4,184 1,913	Budget FY 2001 1,166 0	Budget to Complete 583	Total Program 5,933 1,913
Total Project		0	6,097	1,166	283	7,846
Project 674791	Page 16 of 16 Pages			Exhibit	Exhibit R-3 (PE 0305910F)	5910F)

PE NUMBER: 0305911F PE TITLE: Defense Support Program

F.D. 1.	re iiiee. Deiense support rogram									
	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUD(BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER AND TITLE 0305911F Defen	PE NUMBER AND TITLE 0305911F Defense Support Program	se Suppo	ort Progi	ram		
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	13,971	7,361	11,462	6,418	6,697	0	0	0	1,923,990
673615	15 Shield/Alert	10,461	7,361	7,380	4,336	4,616	0	0	0	69,426
673624	24 Defense Support Program	3,510	0	4,082	2,082	2,081	0	0	0	1,854,564
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
ව	A. Mission Description The Defense Support Program (DSP) is a system of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide strategic and tactical warning and limited attack assessment of a ballistic missile attack. Shield/ALERT (Attack and Launch Early Reporting to Theater) is a ground station mission processing capability which exploits inherent satellite capability to provide theater missile warning and cueing.	atellites in g sion is to pr o Theater) i	eostationary ovide strate _s s a ground si	orbits, fixec gic and tactic tation missio	l and mobile al warning ¿ n processing	ground pround limited s repair capability y	cessing stati ittack assess which explo	ons, one mu' sment of a ba its inherent s	lti-purpose f illistic missi' satellite caps	acility, and a le attack. ability to provide
	DSP 19 launched in April 1999, but the satellite failed to reach geosynchronous orbit.	d to reach go	osynchrono	us orbit.						
9	B. Budget Activity Justification DSP is an operational system and is funded in Budget Activity 7, Operational Systems Support	t Activity 7,	Operational	Systems Su	pport					
9	C. Program Change Summary (\$ in Thousands)				FY 1999		FY 2000	FY 2001	77	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value				11,811		7,459 7,459	7,445	١v	1,937,812
9	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research				-226 -398		;			
	 c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions 				2,636		4 %;			
			Page	Page 1 of 11 Pages	SS				xhibit R-2	Exhibit R-2 (PE 0305911F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	HEET (R-2 Exhib	oit)	DATE Feb	February 2000
8000 07	BUDGET ACTIVITY 07 - Operational System Development 03	PE NUMBER AND TITLE 0305911F Defense (ND TITLE Defense Support Program	ram	
<u>e</u>	C. Program Change Summary (\$ in Thousands) Continued	FV 1000	FV 2000	FV 2001	Total Cont
58	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	13,971	7,361	4,017	-13,822 1,923,990
<u>(</u>	Significant Program Changes: Funding: \$2.1M per year in FY01, FY02 and FY03 was realigned from the Missile Procurement to the RDT&E appropriation to fund DSP 23 mission unique integration with EELV.	Le Procurement to the RD	T&E appropriatior	ı to fund DSP 23 mi	ssion unique
	Funding: \$12.5M FY01-FY03 funding transferred from BPAC 673624 to 673615 to support continued engineering task development for ALERT and engineering prototype, feasibility analysis, and developmental test and evaluation for Shield.	5 to support continued eng	ineering task deve	lopment for ALERI	and engineering
	Funding: \$1.4M FY99 received to support Space-Based Space Surveillance operations Advanced Concept Technology Demonstration (ACTD) Funds erronously placed into BPAC 673615 versus the correct BPAC of 673624-both BPACs in this PE 35911F.	ations Advanced Concept 35911F.	Technology Demo	nstration (ACTD) F	unds erronously placed
	DSP 19 launched in April 1999, but the satellite failed to reach geosynchronous orbit.	ybit.			
	Page 2 o	Page 2 of 11 Pages		Exhibit	Exhibit R-2 (PE 0305911F)
	15	1536			

	RDT&I	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFICA	TION S	жеет (R-2A E	xhibit)		DATE	February 2000	ry 2000
97- 07-	вирдет астіліту 07 - Operational Sy s	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER AND TITLE 0305911F Defen	R AND TITLE F Defen	se Supp	PE NUMBER AND TITLE 0305911F Defense Support Program	am		PROJECT 673615
	COST (\$ ii	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673615	15 Shield/Alert		10,461	7,361	7,380	4,336	4,616	0	0	0	69,426
<u>(G</u>	A. Mission Description Beginning in 1993, the 1 changes provided for the activation, on 10 March distributed to theater wa passive defense by provi resource in the evolution real-time environment.	A. Mission Description Beginning in 1993, the Talon Shield project developed changes to preexisting DSP processing techniques to provide a Theater Missile Defense capability. These changes provided for the timely and accurate detection, description, and tracking of Tactical Ballistic Missiles and other theater threats, and served as the basis for the activation, on 10 March 1995, of full-time ALERT System operations by the newly constituted 11th Space Warning Squadron. ALERT-generated messages are distributed to theater warfighters; they enhance attack operations/counterforce operations by providing accurate, timely launch point estimates and support active and passive defense by providing cueing data to shooters and warning data to theater assets in the form of impact point predictions. Shield has continued to serve as a key resource in the evolution of operational improvements to the ALERT System, demonstrating the value of candidate enhancements on a prototype basis in the live, real-time environment.	d changes to n, descriptio /stem operat operations/c and warning s to the ALE	preexisting n, and track: ions by the r counterforce data to thear RT System,	DSP proces ing of Tactic newly consti poperations ter assets in demonstrati	ssing technic cal Ballistic futed 11th S by providing the form of ing the valu	ques to provi Missiles and pace Warnii g accurate, ti impact point	changes to preexisting DSP processing techniques to provide a Theater Missile Defense capability. These, description, and tracking of Tactical Ballistic Missiles and other theater threats, and served as the basis for stem operations by the newly constituted 11th Space Warning Squadron. ALERT-generated messages are operations/counterforce operations by providing accurate, timely launch point estimates and support active a nd warning data to theater assets in the form of impact point predictions. Shield has continued to serve as a to the ALERT System, demonstrating the value of candidate enhancements on a prototype basis in the live,	Missile Der r threats, an . ALERT-g point estim . Shield has lents on a pr	fense capabil d served as t enerated mes ates and supl s continued to ototype basis	
233333	EY 1999 (\$ in Thousands) \$5,347 Cor \$2,114 Cor \$1,600 Tec \$1,400 Spa \$10,461 Tot	ands) Continued engineering task development to prototype and implement ALERT capabilities leading up to Increment I. Continued SBIRS ground consolidation developmental test and evaluation. Technical analysis and independent verification and validation contractor by FFRDC Space-Based Space Surveillance operations ACTD (placed in BPAC 673615 by error, will be properly executed in BPAC 673624) Total	velopment tc olidation der ident verifica e operations	prototype sevelopmental ution and vast ACTD (pla	and impleme test and eve lidation cont aced in BPA	nt ALERT of uluation. tractor by Fl C 673615 by	capabilities 1 FRDC y error, will	eading up to be properly (Increment]	l. BPAC 6736	.4)
99999	EY 2000 (\$ in Thousands) \$3,446 Cor \$2,715 Cor \$1,200 Tec \$7,361 Tot	ands) Continue engineering prototypes and feasibility analysis. Continued SBIRS ground consolidation developmental test and evaluation. Technical analysis and independent verification and validation of contractor by FFRDC. Total	es and feasit solidation de ıdent verific	vility analysi velopmenta ition and val	is. Il test and ev Iidation of o	aluation. ontractor by	· FFRDC.				
23333	EY 2001 (\$ in Thousands) \$4,906 Cor \$1,257 Cor \$1,217 Tec \$7,380 Tot	ands) Continue engineering prototypes and feasibility analysis. Continued SBIRS ground consolidation developmental test and evaluation. Technical analysis and independent verification and validation of contractor Total	es and feasit solidation de ıdent verifica	vility analysi velopmenta ution and va	s and feasibility analysis. blidation developmental test and evaluation. lent verification and validation of contractor by FFRDC.	aluation. ontractor by	· FFRDC.				
۵	Project 673615			Page.	Page 3 of 11 Pages	SS			Ē	hibit R-2A (Exhibit R-2A (PE 0305911F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	M JUSTIF	ICATION	SHEET (I	R-2A Exh	lbit)	Ω	DATE February 2000	y 2000
300 07-	вирсет астилту 07 - Operational System Development	nt		PE NUMBER AND TITLE 0305911F Defen	AND TITLE - Defense	иртп∟Е Defense Support Program	Program		PROJECT 673615
<u> </u>	B. Project Change Summary \$4M FY00 funds has been transferred from DSP BPAC 673624 to support continued engineering task development for ALERT and engineering prototype, feasibility analysis, and developmental test and evaluation for Shield.	OSP BPAC 6736 ion for Shield.	24 to support c	ontinued engin	eering task de	velopment for	ALERT and e	ngineering prototy	
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	n Thousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Ferimate	FY 2005 Fertimate	Cost to	Total Cost
99	AF RDT&E Other APPN								
9	Missile Procurement (PE 86,964 305911F, BA-05, P-28)	108,342	106,356	113,770	100,528	30,335	35,577	6,026	7,181,833
9 9	Other Procurement (PE 305911F, BA-65, P-N/A) Related RDT&E:	14	9	0	0	0	0	0	1,201,700
<u>e</u>	PE 603441F - SBIRS 144,723	0	0	0	0	0	0	0	1,154,120
<u>(D</u>	PE 604442F - SBIRS Low 36,627 EMD	225,566	241,021	306,530	617,662	763,362	486,840	513,647	3,191,255
9	PE 604441F- SBIRS High 508,473 EMD	420,476	569,188	389,879	196,841	128,871	100,856	356,475	3,492,030
()	D. Acquisition Strategy The ALERT squadron was activated on 1 Oct 94 with an ALERT Initial Operating Capability reached on 10 Mar 95. Shield RDT&E efficapabilities to satisfy continuously evolving threats. Shield supports transition to SBIRS ground architecture consolidating DSP elements.	t 94 with an ALE hreats. Shield su	3RT Initial Ope 1pports transitic	rating Capabili on to SBIRS gr	ity reached on ound architect	10 Mar 95. S ure consolidat	thield RDT&E ing DSP eleme	Shield RDT&E efforts develop DSP ground ating DSP elements.	
<u>(2</u>	E. Schedule Profile		-	FY 1999	4	, EX:	FY 2000	- EX	FY 2001
555_	Theater Situational Analyst (TSA) Transition ALERT Version 14 Operational Shield Hardware Upgrade	_	+ +		·	•		.	
Δ.	Project 673615		Pag	Page 4 of 11 Pages				Exhibit R-2A (PE 0305911F)	PE 0305911F)

	RDT&E PROGRAM ELEMENT	AM ELE	MENT/PR	/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	WN (R-3)		DATE Fe	February 2000	0
BUD(07	вирдет астилту 07 - Operational System Development	velopme	nt		PE NUMBER AI 0305911F		se Suppor	⊌ोगा∟E Defense Support Program		9.9	РВОЈЕСТ 673615
(D)	A. Project Cost Breakdown (\$ in Thousands)	in Thousand	(S)				EV 1000	000	000C XI		EX 2001
9	Contractor Engineering Support							350 250	0	a	F I 2001
3	Software Development						2,5	2,298	3,137	7	3,130
3	Program Management Support						.,	1,303	650		650
5	Training Development						•	009	0		0
39	Developmental 1 est and Evaluation FFRDC	uoi u					1,0	2,310 1,600	2,3/4		2,383
33	Space-Based Space Surveillance ACTD Total	ACTD					1,1	1,400 10,461	7,361		7,380
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	and Plannin	g Information	(S in Thousand	গ্র						
<u>e</u>	Performing Organizations:	Contract									
		Method/Type	Award or	Performing	Project						
	Performing or	or Funding	Obligation Date	Activity	Office FAC	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total
	ased Space						1,400				1,400
_	Surveillance operations										
	ACTD (to be placed in										
	673624 BPAC)										
	Product Development Organizations	<u>suo</u>									
		CPAF	Aug 92	7,898	7,898	7,898				0	7,898
		CPAF	Aug 94	487	487	487				0 (487
	Lincoln Lab	rO CPΔF	Mar 95 Oct 95	027 027	36 270	10 420	6.611	6 161	6 163		287
	arch Corporation	1		2,378	2,378	1.528	850	10160	67.6	0	2,378
	Support and Management Organizations	zations		•		`					
	Program Office Support			N/A	N/A	<i>L</i> 9				0	29
	FFRDC			N/A	N/A	7,547	1,600	1,200	1,217	0	11,564
	Dept Air Force			N/A	N/A	6,989				0	6,989
Д.	Project 673615			Page	Page 5 of 11 Pages	ses			Exhibi	Exhibit R-3 (PE 0305911F)	5911F)

RDT&E PROGRAM ELEMENT/PROJECT C	T/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
вир бет Асті иту 07 - Operational System Development	PE NUMBER AND TITLE 0305911F Defens	e Suppor	⊌ਹ ਸ਼ਾਸ∟E Defense Support Program		₽ 6	PROJECT 673615
(U) Performing Organizations Test and Evaluation Organizations Subtotals Space-Based Space Surveillance operations ACTD (to be placed in 673624 BPAC) Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999 BPAC) 29,621 14,603 44,224	Budget FY 1999 1,400 7,461 1,600 10,461	Budget FY 2000 6,161 1,200 7,361	Budget EY 2001 6,163 1,217 7,380	Budget to Complete 0 0	Total Program 1,400 49,406 18,620 69,426
Project 673615	Page 6 of 11 Pages			Exhibi	Exhibit R-3 (PE 0305911F))5911F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JUSTIFIC,	ATION (SHEET (R-2A E	xhibit)		DATE	February 2000	y 2000
20	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0305911	PE NUMBER AND TITLE 0305911F Defense Support Program	Se Supp	ort Prog	ue.		PROJECT 673624
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673624	24 Defense Support Program	3,510	0	4,082	2,082	2,081	0	0	0	1,854,564
Ð	A. Mission Description The Defense Support Program (DSP) system provides a space-based surveillance system to detect and report missile and space launches and nuclear detonations in real time during pre-, trans-, and post-attack periods. The DSP system consists of a constellation of satellites in geostationary orbits, fixed and mobile ground proce stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide strategic and tactical warning and limited attack assessment of a ballistic missile attack. DSP also detects and reports nuclear detonation events and provides information for theater warning and exploitation. This project funds changes associated with Year 2000 roll-over, ACTD, and DSP-to-SBIRS transition activities and EELV mission unique engineering integration.	vides a space-ba ods. The DSP si communication detects and rep roll-over, ACTI	used surveille ystem consis is network. I orts nuclear O, and DSP-(ance system this of a constraint DSP's primal detonation e	to detect and ellation of sa ry mission is vents and prusition active	report miss itellites in ge to provide s ovides informities and EE	ile and spac costationary strategic and mation for t	e launches ar orbits, fixed I tactical wa heater warni	nd nuclear de and mobile; ming and lin ng and explo	a space-based surveillance system to detect and report missile and space launches and nuclear detonations in near The DSP system consists of a constellation of satellites in geostationary orbits, fixed and mobile ground processing munications network. DSP's primary mission is to provide strategic and tactical warning and limited attack cts and reports nuclear detonation events and provides information for theater warning and exploitation. This over, ACTD, and DSP-to-SBIRS transition activities and EELV mission unique engineering integration.
5555555	 £Y 1999 (\$ in Thousands) \$300 Ground based calibration technology \$100 Year 2000 rollover \$3,606 SBIRS Transition Support \$672 Program Management Support \$672 Long Range Planning \$1,400 Space-Based Space Surveillance operations ACTD (placed in BPAC 673615 by error, will be properly executed in BPAC 673624) \$3,510 Total 	echnology port llance operation	is ACTD (pl	aced in BPA	.C 673615 by	v error, will l	be properly	executed in	BPAC 67362	(4)
999	FY 2000 (\$ in Thousands) \$0 No activity \$0 Total									
5555	FY 2001 (\$ in Thousands) \$2,082 Integration efforts for DSP 23 on Evolved Expandable Launch Vehicle (EELV) \$2,000 Space-Based Space Survellance Operations ACTD \$4,082 Total	23 on Evolved llance Operation	Expandable is ACTD	: Launch Veł	nicle (EELV,					
۵	Project 673624		Page	Page 7 of 11 Pages	SS			Ш	hibit R-2A (Exhibit R-2A (PE 0305911F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEN	I JUSTIFI	CATION	SHEET (F	3-2A Exh	ibit)	Q	DATE February 2000	y 2000
8UD 07	BUDGET ACTIVITY O7 - Operational System Development	elopment			PE NUMBER AND TITLE 0305911F Defen	AND TITLE Defense	PE NUMBER AND TITLE 0305911F Defense Support Program	rogram		PROJECT 673624
(£)	B. Project Change Summary \$4M FY00 funds transferred to support continued engineering task development for ALERT and engineering prototype, feasibility analysis, and developmental test and evaluation for Shield.	pport continu	ed engineering	; task developn	nent for ALER'	F and engineer	ring prototype,	feasibility an	alysis, and develop	
	\$2.1M per year in FY01-FY03 funds integration of DSP 23 onto the EELV-Heavy launch vehicle.	nds integratio	n of DSP 23 o	nto the EELV-	Heavy launch	vehicle.				
9	C. Other Program Funding Summary (\$\sin Thousands)	mary (\$ in T	'housands)							
		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
53	AF RDT&E Other APPN									
3		86,964	108,342	106,356	113,770	100,528	30,335	35,577	6,026	7,181,833
9	Other Procurement (PE	202	14	9	0	0	0	0	0	1,201,700
Ę	305911F, BA-65, P-N/A)									
<u> 3</u>	Kelated KD1 & E: PE 603441F - SBIRS	144,723	0	0	0	0	0	0	0	1,154,120
	Dem/Val	26335	335 566	241 021	306 530	. 617 662	69 292	486 840	513 647	3 191 255
9		70,027	777	241,021	000,000	700,110	700,001	100,001	15,047	0,171,600
Ð	PE 604441F - SBIRS High EMD	508,473	420,476	569,188	389,879	196,841	128,871	100,856	356,475	3,492,030
9	D. Acquisition Strategy DSP has finished the production of satellites 19 through 23. Current contract efforts include support for Flight 20 launch and sustainment for post production storage testing, launch preparation, and on orbit testing. The Space Based Infrared Systems satellites will be the follow-on system to DSP starting in FY04. FY01-FY03 funds will be used to integrate DSP 23 on EELV.	satellites 19 orbit testing EELV.	through 23. C The Space Ba	urrent contract sed Infrared Sy	t efforts include /stems satellite:	support for Fi	light 20 launch Jlow-on syster	1 and sustainn m to DSP stari	123. Current contract efforts include support for Flight 20 launch and sustainment for post production storage ace Based Infrared Systems satellites will be the follow-on system to DSP starting in FY04. FY01-FY03 funds	
9	E. Schedule Profile				1000		0000 133	o	È	1007 X
					F 1 1392			000		1007
Œ	Project 673624			Page	Page 8 of 11 Pages				Exhibit R-2A (PE 0305911F)	·E 0305911F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SHEET (R-2A I	Exhibit		DATE		February 2000	
900 07	вирдет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305911F Defense Support Program	E nse Sur	port Progr	ram		PR 67	PROJECT 673624
(D)	E. Schedule Profile Continued	FY 1999 2 3 4		EY 2000	4	_	FY 2001	4
<u> </u>	Year 2000 DSP renovation DSP Satellite 23 delivery DSP 19 Launch Ground based calibration technology DSP 20 Launch DSP 21 Launch DSP 22 Launch (Sep 02) DSP 23 Launch (Sep 03)					×		
ŭ.	Project 673624	Page 9 of 11 Pages				Exhibit R	Exhibit R-2A (PE 0305911F)	3911F)

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	RDT&E PROGRAM ELEMENT	SRAM ELE		/PROJECT C	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
800 07	вирсет аститу 07 - Operational System Development	Developme	nt nt		PE NUMBER AN 0305911F		וס זיוזרו Defense Support Program	t Program		9 6	РРОЈЕСТ 673624
(3)	A. Project Cost Breakdown (\$ in Thousands)	ı (\$ in Thousan	(Sp				FV 1999	000	FV 2000	٥	FV 2001
5	Year 2000 roll-over activities	S] -	100	0	- K	0
3	Long Range Planning						(1)	232	0		0
9		ance Operations.	ACTD*				1,	1,400	0		2,000
5	_						•	672	0		0
98	SBIRS Transition Support Ground Based Calibration Technology	echnology					~ (*	300 300	0 0		0 0
933		/-Heavy					, <u>, , , , , , , , , , , , , , , , , , </u>	0 0 3,510	00		2,082
)		th BMDO, this c	auses the irreg	ular funding prof	īle		i.		•		
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	g Information	(\$ in Thousand	S						
3	Performing Organizations:										
	Contractor or	Contract									
	Government	Method/Type	Award or	<u>Performing</u>	Project						
	Performing Activity	or Funding	<u>Obligation</u> Date	Activity FAC	Office FAC	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
	Product Development Organizations	izations	A	7						****	
	Previous DSP Contracts					1,536,317	0	0	0	0	1,536,317
	(1960's-1980's)										
	Boeing			6,300	6,300	0	0	0	2,082	4,200	6,282
	Aerojet*	C/CPAF	Oct 93	25,719	25,719	25,719	0	0	0	0	25,719
	Aerojet	C/CPAF	Sep 93	9,025	9,025	9,025	0	0	0	0	9,025
	Aerojet	C/CPFF		25,743	25,743	25,743	0	0	0	0	25,743
	Aerojet	C/CPAF	Oct 95	2,578	2,578	2,578	0	0	0	0	2,578
	Loral	C/FPI/AF/CPF	•-	28,137	37,732	37,732	0	0	0	0	37,732
	DOE	P.O.		10,724	10,724	10,724	0	0	0	0	10,724
	Loral	C/CPAF		22,975	22,975	22,975	0	0	0	0	22,975
<u></u>	Project 673624		,	Page	Page 10 of 11 Pages	ges			Exhibil	Exhibit R-3 (PE 0305911F))5911F)

RDT&E PROGRAM ELEMENT	JGRAM EI	_EMENT/PR	I/PROJECT COST BREAKDOWN (R-3)	OST BF	(EAKDO)	NN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY		:		PE NUMBE						PROJECT
07 - Operational System Development	m Developn	nent		0305911F		se Suppor	Defense Support Program			673624
(U) Performing Organizations Continued: * EAC is also funded by other appropriations.	ns Continued: other appropriation	ns.								
Support and Management Organizations	Organizations									
Various	MIPRs				6,301	0	0	2,000	0	8,301
Aerojet	C/ CPFF		1,305	1,305	1,305	0	0	0	0	1,305
Aerojet/						0	0	0	0	0
Consolidated	C/ FFP	May 96	2,518	2,518	2,518	2,206	0	0	0	4,724
FFRDC	MORD		N/A	N/A	42,109	0	0	0	0	42,109
Other Gov't Cost			N/A	N/A	33,732	1,304	0	0	0	35,036
TRW	C/CPFF		9,872	9,872	9,872	0	0	0	0	9,872
TRW Consolidated	C/CPAF	May 96	292	292	292	0	0	0	0	292
PRC	C/FPIF	Apr 94	7,579	7,579	7,579	0	0	0	0	7,579
SPARTA	C/CPAF	Aug 94	150	150	150	0	0	0	0	150
Test and Evaluation Organizations	nizations									
Program Office Spprt	Various		N/A	N/A	68,101	0	0	0	0	68,101
					Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals					to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
Subtotal Product Development	ment				1,670,813	0	0	2,082	4,200	1,677,095
Subtotal Support and Management	agement				103,858	3,510	0	2,000	0	109,368
Subtotal Test and Evaluation	ion				68,101	0	0	0	0	68,101
Total Project					1,842,772	3,510	0	4,082	4,200	1,854,564
Project 673624			Page	Page 11 of 11 Pages	. səf			Exhibi	Exhibit R-3 (PE 0305911F)	05911F)

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	RDT8	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	February 2000	y 2000
BUDG 07 -	BUDGET ACTIVITY 07 - Operational Svs	обет АСТІVITY - Operational System Development			PE NUMBEF 0305913	PE NUMBER AND TITLE 0305913F NUDE	PE NUMBER AND TITLE 0305913F NUDET Detection System (Space)	ion Syst	em (Spac) (ec	PROJECT 672808
	COST (\$ i	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672808	Nuc Detonation Det Sys (sensors)	rt Sys (sensors)	12,766	14,224	17,088	17,322	18,451	23,277	21,752	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
E	A. Mission Description The Nuclear Detonation the earth's atmosphere o Attack Assessment [ITV space segment consists o Display System (ICADS)	A. Mission Description The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for USSPACECOM (Integrated Tactical Warning and Attack Assessment [ITW/AA]), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The space segment consists of NUDET detection sensors on the Global Positioning System (GPS) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).	(NDS) prov ne. The ND clear Force on the Globé inals (GNT)	ides a worlc S supports I Managemer Il Positionin	lwide, highly NUDET dete nt), and AFT ig System (C	v survivable sction requir AC (Treaty iPS) satellite	capability to ements for L Monitoring)	detect, loca JSSPACEC NDS cons nd segment in	ite, and repo OM (Integra ists of space ncludes the	(NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in a. The NDS supports NUDET detection requirements for USSPACECOM (Integrated Tactical Warning and clear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The on the Global Positioning System (GPS) satellites. The ground segment includes the Integrated Correlation and inals (GNT).	
	This NDS program e GNT provides a surv funds the developme Program (NFIP).	This NDS program element funds Research and Development of ICADS, GNT, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. NAP improves existing NDS capability and will be integrated onto GPS Block IIR satellites 13-21. DOD also funds the development of the Electromagnetic Pulse (EMP) sensor for the Block IIR. The EMP sensor for GPS Block IIF is funded in the National Foreign Intelligence Program (NFIP).	lopment of I NAP impro EMP) senso	ICADS, GN ves existing r for the Blo	T, and NDS NDS capab ock IIR. The	analysis par ility and wil: EMP senso	yload (NAP) I be integrate rr for GPS B	. ICADS pred onto GPS	ovides a fix Block IIR s unded in the	ed ground re satellites 13-2 : National Fo	lopment of ICADS, GNT, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. NAP improves existing NDS capability and will be integrated onto GPS Block IIR satellites 13-21. DOD also EMP) sensor for the Block IIR. The EMP sensor for GPS Block IIF is funded in the National Foreign Intelligence
233333	EY 1999 (\$ in Thousands) \$10,084 Cor \$1,052 Cor \$816 Cor \$100 Cor \$714 Cor	continued ICADS and GNT development Continued NDS sensor on-orbit qualification Completed NDS/NAP (NDS Analysis Package) program integration Continued Space long range planning and analysis Continued mission support requirements Total	evelopment it qualificati analysis Pacl lanning and	on cage) progra analysis	ım integratic	g.					
99999	FY 2000 (\$ in Thousands) \$12,360 Cor \$1,090 Cor \$108 Cor \$666 Cor	sands) Continue ICADS and GNT development Continue NDS sensor on-orbit qualificati Continued Space long range planning and Continue mission support requirements	velopment qualification lanning and analysis irements	n analysis							
Д.	Project 672808			Page	Page 1 of 6 Pages	Ş				Exhibit R-2	Exhibit R-2 (PE 0305913F)
					1547						

Per Number And Title		RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	t)	DATE February 2000	2000
A Mission Description Continued A Mission Description Continued \$14,224 Total \$14,224 Total \$14,224 Total \$1,235 Continue NDS sensor on-orbit qualification \$1,125 Continue NDS sensor on-orbit qualification \$1,129 Continue NDS sensor senso	BUD(07 -	зет астіvіту • Operational System Development	PE NUMBER AND TITLE 0305913F NUDET De	tection Syster	m (Space)	PROJECT 672808
EV 2000 (\$ in Thousands) Continued	<u>e</u>	A. Mission Description Continued				
EY 2001 (\$ in Thousand\$) EV 2001 (\$ in Thousand\$) \$15.156 Continue (IOLDS and GNT development and analysis \$1.123 Continue MIDS Searce or continue mission support requirement \$1.29 Continue mission support requirement \$680 Continue mission support requirement \$17.088 Continue mission support requirement \$17.080 Continue mission support requirement \$17.080 EX 2000 B. Budget Activity. Justification EX 2000 This program is in Budget Activity 7 - Operational System Development because it is a post-Milestone III program. EX 2000 Previous President Submary (\$ in Thousand\$) 13,314 14,430 Previous President Reductions -264 -15 Appropriated Value -264 -15 A. Small Business Innovative Research -16 -78 A. Below Threshold Reprogram -16 -78 A. Below Threshold Reprogram Changes: -153 -153 Current Budget Years Since FY 2000 PBR -15 -153 Current Budget Submir/FY 2001 PBR -15 -15 A. Below Thres	99	FY 2000 (\$ in Thousands) Continued \$14,224 Total				
B. Budget Activity Justification This program is in Budget Activity 7 - Operational System Development because it is a post-Milestone III program. EY 1999 EY 2000 EY 2001 C. Program Change Summary (\$ in Thousands) EY 1999 EY 2000 EY 2001 EY 2001 Previous President's Budget (FY 2000 PBR) 13,314 14,430 17,241 17,241 Adjustment V alue -264 -15 -78 -15 -15 Adjustment Reductions - Small Business Innovative Research -78 -78 -15 c. Omnibus or Other Above Threshold Reprogram - An Elow Threshold Reprogram - 78 - 113 - 113 d. Below Threshold Reprogram - Rescissions - 113 - 113 - 153 Chremator Budget Years Since FY 2000 PBR Significant Program Changes: - 14,224 17,088 Significant Program Changes: - 14,224 17,088 - Significant Budget Submit/FY 2001 PBR Significant Program Changes: - 14,224 17,088 - Significant Program Changes: - 14,224 17,088 - 14,224 17,088 - Significant Program Changes: - 14,224 <	23333	1 (<u>\$ in Thousar</u>				
C. Program Change Summary (\$\tilde{S}\$ in Thousand\$\$) EY 1999 FY 2000 FY 2001 Previous President's Budget (FY 2000 PBR) 13,050 14,430 17,241 Appropriated Value -26 -15 -15 Adjustments to Appropriated Value -264 -15 -15 a. Congressional/General Reductions -37 -78 -78 b. Small Business Innovative Research -78 -78 -158 c. Omnibus or Other Above Threshold Reprogram -37 -113 -113 d. Below Threshold Reprogram -8 Rescissions -113 -1153 f. Other -154 14,224 17,088 Significant Program Changes: -153 -153 Significant Pogram Changes: -5154K FY01 adjustment funded higher priority Air Force efforts. Exhibit R-2 (PE 030	9	B. Budget Activity Justification This program is in Budget Activity 7 - Operational System Development bec	ause it is a post-Milestone III p	rogram.		
Previous President's Budget (FY 2000 PBR) 13,650 14,430 17,241 Appropriated Value -264 -15 -15 a. Congressional/General Reductions -264 -15 -78 b. Small Business Innovative Research -78 -78 -78 c. Omnibus or Other Above Threshold Reprogram -37 -113 -113 d. Below Threshold Reprograms -37 -113 -153 c. Omnibus or Other Above Threshold Reprograms -37 -113 -153 d. Below Threshold Reprograms -71 -113 -153 d. Secissions f. Other -156 14,224 17,088 Significant Program Changes: -SI54K FY01 adjustment funded higher priority Air Force efforts. -153 -153 -Project 672808 Page 2 of 6 Pages Exhibit R-2 (PE 030	9	C. Program Change Summary (\$\sin Thousands)	FY 1999	FY 2000	FY 2001	Total Cost
Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Ornibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Significant Program Changes: -\$154K FY01 adjustment funded higher priority Air Force efforts. Project 672808 Page 2 of 6 Pages -264 -15 -78 -78 -78 -113 -113 -153 -153 -153 -1534 Project 672808 Exhibit R-2 (PE 0305915)	999	Previous President's Budget (FY 2000 PBR) Appropriated Value	13,050	14,430	17,241	TBD
c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR Significant Program Changes: -\$154K FY01 adjustment funded higher priority Air Force efforts. Project 672808 Exhibit R-2 (PE 0305915	9	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research	-264 -176	-15		
Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR Significant Program Changes: -\$154K FY01 adjustment funded higher priority Air Force efforts. Page 2 of 6 Pages Exhibit R-2 (PE 0305913		c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions	-37 -71	<i>-</i> 78		TRD
Significant Program Changes: -\$154K FY01 adjustment funded higher priority Air Force efforts. Project 672808	99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	12,766	14,224	-153 17,088	TBD
Page 2 of 6 Pages	9	Significant Program Changes; -\$154K FY01 adjustment funded higher priority Air Force efforts.				
Page 2 of 6 Pages						
	а.		e 2 of 6 Pages	-	Exhibit R-2 (PE	: 0305913F)

	RDT&E BUDGET ITEM JUSTIFICATION	GET ITE	M JUSTII	-ICATION	SHEET	SHEET (R-2 Exhibit)	ibit)		DATE Fohmon, 2000	0000
90 BU	вирсет астилту 07 - Operational System Development	velopment			PE NUMBER AND TITLE 0305913F NUDE	AND TITLE	NUDET Detection System (Space)	System (S	bace)	у 2000 РКОЈЕСТ 672808
<u> </u>	(U) D. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 1999 Actual Extinuses	mmary (\$ in 1 EY 1999	Chousands) EY 2000	FY 2001	FY 2002	FY 2003	FY 2004	EY 2005	Cost to	Total Cost
99) AF RDT&E Other APPN	To Cina	remark	Continue	Esumare	Estimate	<u>Estimate</u>	Estimate	Complete	
<u> </u>		5,355	5,851	8,070	9,359	8,612	8,187	9,102	Continuing	Continuing
<u>(</u>		2,780	1,547	1,478	1,507	1,539	1,568	1,601	Continuing	Continuing
9	Other Procurement, (PE 0305913F, BA 63 - Electronics and Telecom	1,265	3,459	2,674	8,443	7,957	12,677	11,876	Continuing	Continuing
99		101,587	107,451	250,197	209,114	181,291	132,711	101,958	Continuing	Continuing
9		13,971	7,361	11,462	6,418	6,697	0	0	0	1,923,990
<u> </u>	E. Acquisition Strategy The NDS Acquisition Strategy The NDS Acquisition Strategy is to develop and procure components to sustain the U. S. NDS capability for the GPS Block IIR and IIF satellites. Funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories on an existing DOE contract.	to develop and se Request (M	l procure comp IPR) from Do	onents to susta D and Departm	in the U.S. MI)S capability 1 (DoE) to Sand	for the GPS Blo	ock IIR and II. ımos National	F satellites. Fundi Laboratories on a	ng is sent by n existing DOE
<u> </u>	F. Schedule Profile				FY 1999		FY 2000	000	区	FY 2001
<u>. </u>	Project 672808			Page	Page 3 of 6 Pages				Exhibit R-2 (PE 0305913F)	E 0305913F)

	RDT&E BUDGET ITEM JUSTIFICATI	STIFICATION SHEET (R-2 Exhibit)	-2 Exh	ibit)			DATE	Febr	February 2000	2000	
BUE 07	вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0305913F NUDE	ытп∟Е NUDET Detection System (Space)	Detect	ion Sy	stem	(Spac	(e;		PROJECT 672808	:ст 308
<u>(5)</u>	F. Schedule Profile Continued	<u> </u>	,	,	EY 2000	a	,		FY 2001	ਰ'	•
5555555	GPS IIF Use Case Model Overview GPS IIF System Specification Review GPS IIF System specification Configuration Control Board (CCB) GPS IIF Phase Review GPS IIR Acceptance Test (AT) GPS IIR Operational Acceptance GPS IIR V2K Testing GPS IIR V2K Modifications)	- * * * - * * *	4 *	→ *	~ ×× ×	m × ×	4 ×	- × ×	~ ×	m × ×	4 ×
<u> </u>		*					: ×	:	:	:	
	Project 672808	Page 4 of 6 Pages					Ш	Exhibit R-2 (PE 0305913F)	≀-2 (PE	03059	13F)

	RDT&E PROGRAM ELEMENT	RAM ELE		//PROJECT	COST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
BUD 07	вирсет астилту 07 - Operational System Development	Jevelopme	nt		PE NUMBER AN 0305913F	PE NUMBER AND TITLE 0305913F NUDET	F Detectio	NUDET Detection System (Space)	(Space)		PROJECT 672808
(0)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	ds)				0001 AE	000	EV 200	ş	EV 2001
99	ICADS and GNT Development NDS Sensor On-orbit Qualification	nt cation					10, 1	10,084 1,052	12,360	300	15,156
3333		on d analysis					12,	816 100 714 12,766	0 108 666 14,224	0 38 56 24	0 129 680 17,088
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	ı (S in Thousa)	(spu						
9	Performing Organizations:										
	Contractor or	Contract Method/Tyne	Award or	Performing	Project						
	Performing	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	EY 2001	Complete	Program
	Product Development Organizations ICADS: Sandia National MIPR	zations MTPR	Ian 96	Continuing	Continuina	37 318	0 343	11 500	14 287	Continuing	TRD
		,		9			, ;	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
	GNT: Intermetrics	CPFF	Dec 93	1,262	1,262	1,262	0	0	0	0	1,262
	SNL	MIPR	Jan 96	Continuing	Continuing	11,873	0	0	0	0	11,873
	SAIC (Intg/Grd Supt)	Time/Matls	Dec 95	Continuing	Continuing	4,344	1,123	1,146	1,172	Continuing	TBD
	Combined GOSC/NAP:	FFP	Oct 97	3,633	3,633	6,166	816	0	0	0	6,982
	Cockned Martin	MIDD	0.4 07	Continuing	Continuing	000	c	c	<	c	000
	SAIC	Time/Matl	Dec97	432	432	432	0	0	0	0	432
	W-Sensor: SRI (Stanford	CPFF	Aug 94	415	415	415	0	0	0	0	415
	Rsch Inst.)	!	,	,	,	1	,	,	,	•	,
	SNL	MIPR	Oct 94	399	399	399	0	0	0	0	399
	Los Alamos Natl Lab	MIPR	Jan 96	Continuing	Continuing	4,077	1,052	1,090	1,123	Continuing	TBD
止	Project 672808			P	Page 5 of 6 Pages	ses			Exhib	Exhibit R-3 (PE 0305913F)	05913F)
I											

	RDT&E PROGRAM ELEMENT	ZAM ELE		ROJECT	COST BI	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	l e
0 6 0 6	вирсет астилту 07 - Operational System Development	evelopme	± t		PE NUMBER AN 0305913F		Detection	м тиге NUDET Detection System (Space)	(Space)	9	РРОЈЕСТ 672808
9	Performing Organizations Continued: Support and Management Organizations Mission Support Long range planning Prog Contractual Spt. Multiple Test and Evaluation Organizations Hill AFB Utah	ontinued: anizations Multiple Multiple Multiple ions	N/A N/A Various	Continuing Continuing 1,534	Continuing Continuing 1,534	3,529 73 1,534	171 100 161	371 108 0	377 129 0	Continuing Continuing 0	TBD TBD 1,695
(3	Government Furnished Prop Item Description Product Development Properts N/A	perty: Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1992	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Support and Management Property N/A Test and Evaluation Property N/A Subtotals Subtotal Product Development Subtotal Test and Evaluation Total Project	ent t				Total Prior to FY 1999 61,486 5,136 9 66,631	Budget FY 1999 12,334 432 12,766	Budget FY 2000 13,745 479 14,224	Budget EY 2001 16,582 506 17,088	Budget to Complete TBD TBD TBD	Total Program TBD TBD 9
T.	Project 672808			14	Page 6 of 6 Pages	ges			Exhib	Exhibit R-3 (PE 0305913F))5913F)

	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - O	вирсет астилту 07 - Operational System Development			PE NUMBEF 0305917	PE NUMBER AND TITLE 0305917F Space	PE NUMBER AND TITLE 0305917F Space Architect	ct			PROJECT 674746
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674746	AF/National Program Cooperation	12,896	10,882	0	0	0	0	0	0 Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
11 0000 11		1000000								

FY 2001 funding for AFNPC is being requested under PE 0603856F.

Note: In FY 2000, per Congressional direction, the National Security Space Architect (NSSA), PE 0305917F, was merged with the Air Force/NRO Partnership, PE 0603856F, into a new entity entitled 'AF/National Program Cooperation (AFNPC). FY00 AFNPC funding was executed in this PE, 0305917F. In FY 2001 the NSSA moves to defense-wide PE 0305190D, 'C3I Intelligence Programs'; remaining AFNPC efforts move to PE 0603856F, where FY 2001 funding is requested.

(U) A. Mission Description

Detailed descriptions for the AF/National Program Cooperation are in PE 0603856F, where FY 2001 funds for that effort are requested. Efforts that will remain part of AFNPC in FY 2001 are detailed there; the National Security Space Architect, part of AFNPC for FY 2000 only, is detailed below.

architectural activities of the National Reconnaissance Office (NRO). The name was changed to National Security Space Architect (NSSA). This organization works to The Under Secretary of Defense for Acquisition and Technology established the Department of Defense (DoD) Office of the Space Architect (OSA) to consolidate DoD integrate space system architectures, eliminate unnecessary vertical stovepiping of space programs, and achieve efficiencies in acquisition and future operations through space program integration, thereby improving space support to a variety of customers. The NSSA obtains direct support from various space planning and development organizations across the federal government and industry for space architecture planning and development. Funding in this document incorporates DoD requirements space system architecture development responsibilities into a single organization. The OSA was one of DoD's responses to congressional concerns regarding DoD space management. In July 1998, a Memorandum of Understanding was signed by the Secretary of Defense and Director of Central Intelligence to incorporate the only. NRO requirements and funding to support the NSSA efforts are not included in this program element.

(TY 1999 (\$ in Thousands)

Core Analysis (Analysis, Modeling and Simulation, Cost, Spectrum) and Core System Engineering and Integration (SE&I) (Community Coordination, Strategic Planning, Process Support and Information Management) (U) \$3,162

1553

Page 1 of 6 Pages

Project 674746

Exhibit R-2 (PE 0305917F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
9008 07 -	вирсет АстіvітY 07 - Operational Sy s	вироет аститу 07 - Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT 674746
(D)	A. Mission Description Continued	on Continued		
999	EY 1999 (\$ in Thousands) Continued \$140 Other Architec \$605 National Secur	ture Studies and Airy Space Master	Architecture Study Planning Plan and National Security Space Roadmap Development and Update (included in 'Other Architecture' in the	d in 'Other Architecture' in the
9	\$12,896	FY 2000 KD L&E Budget Justification Exhibit for this Program Element Total	is Program Element	
9	FY 2000 (\$ in Thousands)	(spur		
<u> </u>	\$2,324 \$456	Mission Information Management (MIM) ADT Space Weather (SWx), Space Control and MILSATCOM Architecture Tracking	COM Architecture Tracking	
<u>(</u> 2)	\$2,886	Core Capabilities (Space Architecture Engineering,	ecture Engineering, Analytic Methods and Tools, Collaboration Technologies, Process Support, and Information	Process Support, and Information
(1)	\$1.686	Management) Architectural ADTs/Studies Directed by Stakeholder	Management) Architectural ADTs/Studies Directed by Stakeholders (including Hynersnectral Strategy Study) and Architecture Study Planning	re Study Planning
3	\$355	Satellite Operations Architecture Transition Planning	Satellite Operations Architecture Transition Planning and Tracking (part of 'Documentation and Support' item in FY 2000 budget justification	n FY 2000 budget justification
Ę	9110	document)		
<u> </u>	51,115	national Security Space Master Fian and Inational So in FY 2000 budget justification document)	rian and inational Security Space Koadmap Development and Opdate (part of Documentation and Support item document)	Documentation and Support Item
9	\$1,337	Technical support to the AF/NRO Integration Planni	Technical support to the AF/NRO Integration Planning Group, ANIPG (included in PE 0603856F in the FY 2000 RDT&E Budget Item	00 RDT&E Budget Item
9	\$723	Developing processing capabilities to exploit SBIRS	Developing processing capabilities to exploit SBIRS sensor data for technical intelligence (included in PE 0603856F in the FY 2000 RDT&E	1856F in the FY 2000 RDT&E
9	\$10,882	Budget item Justification) Total		
5	FY 2001 (\$ in Thousands)	(spui		
93	\$0 \$0	No Activity Total		
	*FY 2001 NSSA func	ling is requested in defense-wide PE 0305190D; rema	*FY 2001 NSSA funding is requested in defense-wide PE 0305190D; remaining AFNPC funding is requested in justification for PE 0603856F.	603856F.
<u> </u>	B. Budget Activity Justification This program is in Budget Activit	y 7 because the archii	ecture studies affect the design and acquisition of systems to be developed.	
Ā	Project 674746	Pa	Page 2 of 6 Pages	Exhibit R-2 (PE 0305917F)

	RDT&E BUDGET ITEM JU	JUSTIFICATION SHEET (R-2 Exhibit)	NOI	ЗНЕЕТ (R-2 Exhi	bit)	Δ	DATE February 2000	y 2000
8UD 07 .	вирсет аститту 07 - Operational System Development			PE NUMBER AND TITLE 0305917F Space	AND TITLE Space Architect	rchitect			PROJECT 674746
(D)	C. Program Change Summary (\$ in Thousands)				FY 1999	FY 2000		FY 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value				13,560	9,898	e	10,470	TBD
<u>e</u>	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram				-154				
55	 d. Below Threshold Reprogram e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR 				-164 -72 12,896	10,882		-10,470 0	TBD CBT
9	Significant Program Changes: FY 1999: \$164K reprogrammed to support higher Air Force priorities.	Air Force priorities	κ'n						
	FY 2000: Per Congressional direction, the National Security Space Architect (NSSA), PE 0305917F, was merged with the AF/NRO Partnership, PE 0603856F, into a new entity entitled 'AF/National Program Cooperation (AFNPC). AFNPC funding was executed in this PE for FY 2000.	l Security Space A tion (AFNPC). AF	rchitect (NSSA), PE 0 ding was exe	305917F, was cuted in this F	s merged with 1 E for FY 2000	the AF/NRO).	Partnership, PE 060	33856F, into a
9	defen n Th	s-wide PE 0305190 sands)	0D. AFN	PC funding r	noves to PE 0	603856F.	ACCOUNTY TO	Č	C F
5555	Actual Es Actual Es N/A Other APPN Intelligence Community* *Not available	Estimate Estimate		Estimate	Estimate	Estimate	Estimate Estimate	Complete	Logi Cost
LL.	Project 674746		Page 3	Page 3 of 6 Pages				Exhibit R-2 (PE 0305917F)	E 0305917F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	HEET (R-2 Exhibit)	DATE February 2000
BUE 07	ВИDGET АСТИИТУ 07 - Operational System Development	PE NUMBER AND TITLE 0305917F Space Architect	PROJECT 674746
(വ)	E. Acquisition Strategy The acquisition strategy for the National Security Space Architect is detailed below; strategies for other AFNPC efforts are detailed in the budget justification for PE 0603856F.	w; strategies for other AFNPC efforts are detailed	in the budget justification for PE
	RDT&E funds will be used to obtain infrastructure support and direct support from various space planning and development organizations across the DoD and industry, including Federally Funded Research & Development Centers (FFRDCs) and contracted System Engineering and Technical Assistance in direct support of DoD space architecture planning and development. Funds will be applied to existing contract vehicles. - As primary support, the Space Architect plans to use two existing Space & Missile Center (SMC) contracts for technical support: - Engineering, Analysis, Design and Development Contract; Science Applications International Corporation (SAIC) - Engineering, Analysis and Design Contract, Nichols Research Corporation - Engineering, Analysis and Design Contract, Nichols Research Corporation	m various space planning and development organizatracted System Engineering and Technical Assistatt vehicles. Missile Center (SMC) contracts for technical supprisons International Corporation (SAIC)	zations across the DoD and industry, ance in direct support of DoD space oort:
9	F. Schedule Profile	EY 1999 EX 2000	EY 2001
<u> </u>	SATOPS Transition/Implementation Plan Start ** MIM Initiate ADT Position/Navigation Frequency Allocation Determination Space Weather Architecture - Phase II Completion SATOPS Transition/Implementation Plan Complete Space Weather Architecture - Final Report Published MIM 99 Report #* ** ** ** ** ** ** ** ** *	* * * * * oving to PE 0603856F in FY 2001 are noted in the	X S budget justification document for
	that PE. Project 674746	Page 4 of 6 Pages	Exhibit R-2 (PE 0305917F)
l			

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	r/PROJECT C	OST BR	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	9
8ub 04	BUDGET ACTIVITY 07 - Operational System Development	Developme			PE NUMBER AI 0305917F		ID TITLE Space Architect			PF 6.	PROJECT 674746
3	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	IS)				FY 1999	666	FY 2000	ے	FY 2001
9	Architecture Tracking and Transition Planning	ansition Plannin	<u>50</u>				1.1	1,149	811	y	
3	Space Weather Architecture)				1,8	1,851	0		
3	National Security Space Master Plan and Roadmap	er Plan and Roa	ıdmap				Ψ	605	1,115		
96	Mission Information Management	ment	Study Diamino				5,0	5,989	2,324	<u>-</u>	
36	Core Capabilities & Analysis	inclinates and	ordey a raming				3,	3,162	2,886		
399	Technical support to the AF/NRO Integration Planning Group Develop processing capability to exploit SBIRS data for the technical intelligence (TI) mission Total	VRO Integration / to exploit SBI	n Planning Grov RS data for the	up technical intellig	gence (TI) m	ission	12,8	12,896	723 1,337 10,882		
9	B. Budget Acquisition History and Planning Inform	ry and Plannin	<u>g Information</u>	nation (\$ in Thousands)	(8)						
9	Performing Organizations:										
	Contractor or	Contract									
	Government	Method/Type	Award or	Performing	Project			•			E
	<u>Performing</u> <u>Activity</u>	or Funding Vehicle	Obligation Date	Activity EAC	Office EAC	Lotal Prior to FY 1999	FY 1999	FY 2000	FY 2001	Sugget to Complete	Program
	Product Development Organizations	zations									
	SMC	MIPR	12/98	TBD	TBD			723			723
	Support and Management Organizations	anizations			777.	•		700		c	2000
	Aerospace	C/CPAF	1993	N/A	4 × ×	1,038	1,162	9/8		>	3,0/0
	IASC	C/CPAF	1993	K W	Ϋ́Z Z	870	783	590		0	2,243
	Misc Contracts	Various	Various	N/A	N/A	3,205	1,044	38		0	4,287
	Misc In-House	Various	Various	N/A	N/A	790	764	3,073		0	4,627
	NRC	C/CPAF	1997	N/A	N/A	3,555	3,843	2,211		0	609'6
	SAIC	C/CPAF	1997	N/A	N/A	3,950	4,962	2,034		0	10,946
	ANIPG	MIPR	10/98	Continuing C	Continuing			1,337			1,337
	Test and Evaluation Organizations	tions									
	None										
	Project 674746			Pag	Page 5 of 6 Pages	sə			Exhibi	Exhibit R-3 (PE 0305917F))5917F)

RDT&E PROGRAM ELEMENT/PROJECT	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	٥
вир бет Асті иту 07 - Operational System Development	PE NUMBER AND TITLE 0305917F Space	⊌ਹੋ ਸਾ⊓E Space Architect			P. 6.	РРОЈЕСТ 674746
(U) Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Product Development Property None Support and Management Property None Test and Evaluation Property None Subtotals Subtotals	Total Prior to FY 1999 Total Prior to FY 1999	Budget FY 1999 Budget FY 1999	Budget FY 2000 Budget EY 2000 723	Budget FY 2001 Budget FY 2001	Budget to Complete Budget to Complete	Total Cogram Cotal Program 723
Subtotal Support and Management Subtotal Test and Evaluation Total Project	13,408	12,896	10,159		0 0	36,463
Project 674746	Page 6 of 6 Pages			Exhibi	Exhibit R-3 (PE 0305917F)	5917F)

PE NUMBER: 0308601F
PE TITLE: Modeling and Simulation Support

	RDT&E BUDGET ITEM JI	USTIFICATION SHEET (R-2 Exhibit)	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGE 07 - C	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER 0308601	PE NUMBER AND TITLE 0308601F Mode	ing and	PE NUMBER AND TITLE 0308601F Modeling and Simulation Support	on Suppo	ort	
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	1,038	0	1,177	1,218	1,317	1,343	1,370	1,370 Continuing	TBD
671011	671011 Legacy Model Trasition (LMT)	355	0	386	393	402	410	418	418 Continuing	TBD
674566	Executive Agent for Air/Space Natural Environment	683	0	791	825	915	933	952	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0 Continuing	TBD
		1								

Congress eliminated FY00 funding. The Air Force is in the process of consolidating small dollar Modeling, Simulation, and Analysis (MS&A) R&D programs (PE 38601F -Modeling & Simulation Support' Budget Activity 07 RDT&E (3600 appn.)) under PE 27601F - 'USAF Modeling and Simulation'. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable USAF Modeling and Simulation development effort.

(U) A. Mission Description

development and interaction for the entire modeling and simulation community. Emphasis is placed on joint applicability and acceptance. The Executive Agent for Air legacy models and simulations to emerging DoD standard models and architecture. Numerous models currently exist and are being modified or developed for a broad interoperability, re-use, and confidence. Primary users will be unified commanders and service components for use in joint or service-specific exercises involving air, processes, and other applications. This enables the major Joint simulation systems (i.e., Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint This PE includes funding to support an organized growth and management of modeling and simulation (M&S) systems as the Air Force transitions from numerous Transition) funds the upgrades to selected R&D models through a board process. The selection process allows the board to influence the direction of legacy model range of areas including acquisition, analysis, test and evaluation, and training. The Joint Model Transition (JMT) Program (formerly known as the Legacy Model (BMDO), etc.) to represent the air and space natural environment rapidly, thoroughly, and consistently in a manner that promotes cost-effectiveness, ready access, & Space Natural Environment (ASNE) serves the M&S community as subject matter experts for ASNE M&S databases (including relevant standards), dynamic Modeling and Simulation System (JMASS), and Joint and Service component programs (i.e., Joint Strike Fighter (JSF), Ballistic Missile Defense Organization ground, sea, and space campaigns.

architecture. Added, FY01 PE: 38601 RDT&E funding provides modeling and simulation development efforts to digitally represent air and space natural environments All FY02-07 RDT&E funding in PE: 38601F - 'Modeling and Simulation Support' will be transferred to PE: 27601F - 'USAF Modeling and Simulation'. In the interim, FY01 RDT&E funding in PE: 38601F is needed to continue integrating and developing numerous AF models and simulations into emerging DoD standard models and integrated into the major Joint simulation systems (ie. Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System

Page 1 of 8 Pages

Exhibit R-2 (PE 0308601F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ATION SHEET (R-2 Exhib	it)	DATE February 2000	y 2000
BUDC 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0308601F Modeling and Simulation Support	and Simulatio	n Support	
(5)	A. Mission Description Continued (JMASS)).				
9	B. Budget Activity Justification This program is in budget activity 7 - Operational System Development, because these funds support development activity for the AF as executive agent for air/space natural environment and continued development and integration of AF models in the Joint Model Transition (JMT) program.	oment, because these funds support develor f AF models in the Joint Model Transition	opment activity for t n (JMT) program.	he AF as executive agen	ıt for air/space
3	C. Program Change Summary (\$ in Thousands)	FV 1999	FY 2000	FV 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	1,090	1,069	1,177	
3	Adjustments to Appropriated Value				
	a. Congressional/General Reductions b. Small Business Innovative Research	-3			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-16			
	e. Kescissions	9-			
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	1,038		1,177	TBD
<u>(</u>	Significant Program Changes: FY00 funding eliminated.				
		Page 2 of 8 Pages		Exhibit R-2 (Exhibit R-2 (PE 0308601F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	\TION 8	SHEET (R-2A E	xhibit)		DATE	Februa	February 2000
BUDG 07	BUDGET ACTIVITY	DGET ACTIVITY - Onerational System Develonment			PE NUMBER AN	PE NUMBER AND TITLE	ID TITLE Modeling and Simulation Support	Simulation	Supp	ţ	PROJECT 671011
5	COST (\$ ii	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
671011	11 Legacy Model Trasition (LMT)	ition (LMT)	355	0	386	393	402	410	418	Continuing	TBD
E	A. Mission Description Numerous models are be Program (formerly know allows the board to influ and acceptance. All FYG	A. Mission Description Numerous models are being developed for a broad range of areas including acquisition, analysis, test and evaluation, and training. The Joint Model Transition (JMT) Program (formerly known as Legacy Model Transition) supports the development and upgrade of R&D models selected through a board process. The selection process allows the board to influence the direction of model development and integration for the modeling and simulation community. Emphasis is placed on joint applicability and acceptance. All FY02-07 RDT&E funding in PE: 38601F will be transferred to PE: 27601F, titled 'USAF Modeling and Simulation'.	nge of areas nn) supports i levelopment 38601F will	including ac the developi and integrat	cquisition, an ment and up, tion for the r red to PE: 2	nalysis, test : grade of R& nodeling and	ige of areas including acquisition, analysis, test and evaluation, and training. The J supports the development and upgrade of R&D models selected through a board evelopment and integration for the modeling and simulation community. Emphasis 38601F will be transferred to PE: 27601F, titled 'USAF Modeling and Simulation'	on, and train lected throu community.	ing. The Jo gh a board r Emphasis imulation'.	int Model Tr process. The	ge of areas including acquisition, analysis, test and evaluation, and training. The Joint Model Transition (JMT) supports the development and upgrade of R&D models selected through a board process. The selection process velopment and integration for the modeling and simulation community. Emphasis is placed on joint applicability 38601F will be transferred to PE: 27601F, titled 'USAF Modeling and Simulation'.
9999	FY 1999 (\$ in Thousands) \$162 De \$128 Re \$65 De digi	Develop and Integrate service analysis models into next generation joint models. Requirements/cost-benefit analysis for Next Generation Mission Model (NGMM). Develop comprehensive Digital System Models (DSMs) to support Analysis of Alternatives (AoAs) for potential development programs. DSMs digitally represent weapon system platforms and are used to evaluate existing platform capabilities against new threats, ability to upgrade weapon systems to satisfy new requirements, etc. Results of AoAs using DSMs are used as a decision tool to determine future weapon system developments and/or upgrades.	analysis mo alysis for Ne: al System M tem platform requirement	dels into nect Generatico odels (DSM) s and are us	xt generation on Mission IN fs) to suppor sed to evalua ults of AoAs	or joint mode fodel (NGM t Analysis o te existing p using DSMs	ils. IM). f Alternative ilatform capa ; are used as	ss (AoAs) fc ibilities agai ; a decision 1	or potential d nst new thr tool to deten	levelopment eats, ability t mine future v	analysis models into next generation joint models. lysis for Next Generation Mission Model (NGMM). Il System Models (DSMs) to support Analysis of Alternatives (AoAs) for potential development programs. DSMs em platforms and are used to evaluate existing platform capabilities against new threats, ability to upgrade requirements, etc. Results of AoAs using DSMs are used as a decision tool to determine future weapon system
9	\$355	Total									
999	FY 2000 (\$ in Thousands) \$0 No Tot Tot	<u>ands)</u> No Activity Total									
9999	FY 2001 (\$ in Thousands) \$114 De \$100 Re \$172 De digi	<u>nds</u>) Develop and integrate service analysis models into next generation joint models. Requirements/cost-benefit analysis for Next Generation Mission Model (NGMM). Develop comprehensive Digital System Models (DSMs) to support Analysis of Alternatives (AoAs) for potential development programs. DSMs digitally represent weapon system platforms and are used to evaluate existing platform capabilities against new threats, ability to upgrade weapon systems to satisfy new requirements, etc. Results of AoAs using DSMs are used as a decision tool to determine future weapon system	analysis mo ilysis for Ne: al System M tem platform requirement	dels into nes kt Generatic odels (DSIA s and are us is, etc. Resu	xt generation on Mission N fs) to suppor sed to evalua	joint mode fodel (NGM t Analysis o te existing p using DSMs	ls. f Alternative datform capa	ss (AoAs) fc ibilities agai	r potential d nst new thr ool to deten	levelopment eats, ability t mine future v	programs. DSMs to upgrade weapon system
<u>(</u>	\$386	developments and/or upgrades. Total									
P	Project 671011			Page	Page 3 of 8 Pages	S			Ä	hibit R-2A (Exhibit R-2A (PE 0308601F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	JUSTIFI	CATION	SHEET (F	3-2A Exh	libit)	DATE	⊤E February 2000	y 2000
8UD 01	вирсет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0308601F Mode	AND TITLE Modelin	மார்∟் Modeling and Simulation Support	lation Sur	port	РВОЈЕСТ 671011
(n)	B. Project Change Summary								
9	C. Other Program Funding Summary (S in Thousands) FY 1999 FY 2000 Actual Estimate	ousands) FY 2000 Ferimate	FY 2001.	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Complete	Total Cost
99									
Ð	D. Acquisition Strategy The funds are provided to the Office of Aerospace Studies (OAS), Kirtland AFB, NM, for contract actions in the development of the Next Generation Mission Model (NGMM), Joint Model Transition Plan, and Analysis of Alternatives (AoA) studies for analysis models and digitial system models. OAS will oversee a prioritization process for contract selection and development effort.	Studies (OA /sis of Altern fort.	sS), Kirtland atives (AoA)	AFB, NM, for c studies for anal	ontract action: ysis models ar	s in the develop nd digitial syste	oment of the Norm models. O⊅	es (OAS), Kirtland AFB, NM, for contract actions in the development of the Next Generation Mission Model Alternatives (AoA) studies for analysis models and digitial system models. OAS will oversee a prioritization	ission Model prioritization
9	E. Schedule Profile		-	FY 1999	~	$\frac{\text{FY } 2000}{3}$	000	됩, -	FY 2001
<u>(5)</u>	Fund Next Generation Mission Model project (Phase I completed 10FV99)	ase I comple	ted *		۲	1		· ×	
9	Develop AoA studies for standard toolkit (Phase I completed 10FY99)	completed	*					×	
9_	Integrate models (P1 completed 4QFY99)				*				×
	3-0-1-0-4-674044		Ğ	Dana A of & Danas				Evhihit R.24 (PE 0308601E)	PE 0308601E)
			La	1567					

	RDT&E PROGRAM ELEMENT	RAM ELE		PROJECT C	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
BUDGET , 07 - 0 1	BUDGET ACTIVITY 07 - Operational System Development	Developme	int		PE NUMBER AN 0308601F	PE NUMBER AND TITLE 0308601F Modeli	⊌ो गा∟E Modeling and Simulation Support	mulation (Support	9	РВОЈЕСТ 671011
(J) A.	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	<u>(sp</u>				EV 1000	000	0000	9	EV 2001
	Contractor Support	,]''	290	17	30	307
-	Program Management Support Travel	Ę						25 40		00	30 49
	Total	Ā			4		×1	355		0	386
(a)	D. Duuget Acquistion ristory and rianning internation (3 in 1 nousands)	ry and rianni	ig iniorinatio	n (3 in 1 nousand	2						
<u>a</u> aaaa	Performing Organizations: Contractor or Government Performing	Contract Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget EV 1000	Budget	Budget	Budget to	Total
司品	Activity Product Development Organizations	<u>venicie</u> zations	Date	EAC	EAC	10 F I 1999	FT 1999	FT 2000	F I 2001	Complete	Program
Vai	Various Various Summent Organizations	Various	Various			0	355	0	386	Continuing	TBD
14	Test and Evaluation Organizations	tions									
Sul	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Sut	Subtotal Product Development	ıt				0	355	0	386	TBD	TBD
Sul	Subtotal Support and Management Subtotal Test and Evaluation	ment									
Tol	Total Project					0	355	0	386	TBD	TBD
Proje	Project 671011			Pag	Page 5 of 8 Pages	es			Exhib	Exhibit R-3 (PE 0308601F)	08601F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	\TION (SHEET (R-2A E	xhibit)		DATE	February 2000	y 2000
BUDC	BUDGET ACTIVITY				PE NUMBER	PE NUMBER AND TITLE					PROJECT
04	Operational Sy	07 - Operational System Development			0308601	F Mode	0308601F Modeling and Simulation Support	Simulati	on Supp	ort	674566
	COST (\$ i	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674566		Executive Agent for Air/Space Natural Environment	683	0	791	825	915	933	952	Continuing	TBD
(D)	A. Mission Description Air Force Director of W (ASNE). This program Simulation System (JSI) service components for the FY02-07 POM cycle	A. Mission Description Air Force Director of Weather (AF/XOW) is designated as the DoD Modeling and Simulation Executive Agent (MSEA) for Air and Space Natural Environment (ASNE). This program provides funds for MSEA joint wargaming architecture, data base, model development support for Joint Warfare Simulation (JWARS), Joint Modeling and Simulation System (JMASS), and other joint M&S program offices. Primary users will be unified commanders and service components for use in joint exercises involving air, ground, sea, and space campaigns. All FY02-07 RDT&E funding in PE: 38601F will be reprogrammed in the FY02-07 POM cycle to PE: 27601F, titled 'USAF Modeling and Simulation'.	ted as the Dc nt wargamin ulation Syste ig air, ground	d as the DoD Modeling ar t wargaming architecture, lation System (JMASS), a sir, ground, sea, and spac Modeling and Simulation.	g and Simul; ure, data base i), and other ; space campai on'.	ution Execut , model dev joint M&S p gns. All FY	ive Agent (A elopment su rogram offic '02-07 RDT	ASEA) for Apport for Joi ces. Primar &E funding	vir and Spac int Warfare v users will in PE: 3860	e Natural Env Simulation (J be unified col 1F will be rej	rironment WARS), Joint nmanders and rrogrammed in
55555	EY 1999 (\$ in Thousands) \$255 Sp: \$55 Prc \$373 Air \$683 Tot	iands) Space weather model development Production center model development Air/Space weather effects development Total	ment lopment elopment								
<u> </u>	FY 2000 (\$ in Thousands) \$0 No \$0 Tot	<u>ands)</u> No Activity Total									
99999	EY 2001 (\$ in Thousands) \$128 Sp: \$513 Pro \$150 Aii \$791 Tot	<u>sands)</u> Space weather prototyping and integration Production center model development Air/Space/Land battlefield weather effects integration Total	d integration lopment ather effects	integration							
<u> </u>	B. Project Change Summary FY00 funding eliminated.	Summary nated.									
<u>a</u>	Project 674566			Page	Page 6 of 8 Pages	ν.			Û	chibit R-2A (Exhibit R-2A (PE 0308601F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	EM JC	ISTIFI	CATION	SHEET (R-2A Exh	nibit)	a	DATE February 2000	v 2000
97 04	вирсет астилту 07 - Operational System Development	nent			PE NUMBER AND TITLE 0308601F Mode	AND TITLE F Modelin	мотпе Modeling and Simulation Support	ulation Su	pport	PROJECT 674566
<u>(3</u>		\$ in Thous 92	ousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
33	AF RDT&E Other APPN								ı	
9	D. Acquisition Strategy The Executive Agent for Air & Space Natural Environment will develop, prototype, and integrate the current suite of production and research grade models for Service and Joint distributed simulation models. The majority of efforts are executed and managed through the DoD laboratory system.	ıral Enviro The majorit	nment wil y of effor	l develop, pro ts are execute	ototype, and in d and managed	tegrate the cun I through the L	rent suite of pro	oduction and r system.	esearch grade moo	dels for Service
9	E. Schedule Profile			_	FY 1999 2 3	4	$\frac{\text{FY } 2000}{1}$	2000 3	1 EX	FY 2001
9999	Architecture - ESG IOC (Completed 3QFY99) Architecture - ESG FOC Models - CSSMS FOC Models - ISM IOC	(66,			*					×××
	Project 674566			Pag	Page 7 of 8 Pages				Exhibit R-2A (PE 0308601F)	PE 0308601F)

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	VN (R-3)		DATE Fe	February 2000	8
8000 07 -	вирсет астилту 07 - Operational System Development	Developme	ınt		PE NUMBER AN 0308601F	PE NUMBER AND TITLE 0308601F Modeli	⊌ोगार Modeling and Simulation Support	mulation	Support		PROJECT 674566
(1)	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(sp				FV 1999	000	FV 2000	Q	FV 2001
55555	Software Development Lab Overhead/Management Prototyping Travel Total							341 77 240 25 683		80000	258 80 428 25 791
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannir	<u>ng Informatio</u>	n (\$ in Thousand	গ্র						
<u> </u>	Performing Organizations: Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
,	Product Development Organizations Various Support and Management Organizations	zations Various ganizations	Various				683	0	791	Continuing	TBD
	Test and Evaluation Organizations Subtotals Subtotal Product Development Subtotal Support and Management	tions nt ment				Total Prior to FY 1999	Budget FY 1999 683	Budget FY 2000 0	Budget FY 2001 791	Budget to Complete TBD	Total Program TBD
	Subtotal Test and Evaluation Total Project						683	0	791	TBD	TBD
٦	Project 674566			Pag	Page 8 of 8 Pages	es			Exhib	Exhibit R-3 (PE 0308601F)	08601F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	USTIFIC	ATION	SHEET	(R-2 Ex	thibit)		DATE		February 2000
BUDG 07 -	вирсет Астіvіту 07 - Operational System Development			PE NUMBER AN 0308699F		ютпсе Shared Early Warning System	Varning	System		PROJECT 674838
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674838	38 Shared Early Warning System	0	11,532	4,219	4,411	3,424	2,932	2,928	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
©	A. Mission Description Shared Early Warning Systems (SEWS) developed out of Presidential foreign policy initiatives beginning in 1996. Arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning data. These efforts were initially handled on an ad hoc basis through the Office of the Secretary of Defense (OSD), the Joint Staff, and the National Reconnaissance Office (NRO). Regional U.S. CINCs and other policy makers strongly support these efforts based on political and operational benefits. In 1998, SEWS was established as a formal DoD program with the Air Force as the lead service. SEWS is comprised of: program management by the system program office (SPO) to include the use of Federally Funded Research & Development Corporation and Systems Engineering and Technical Assistance contractors to develop a common SEWS architecture; coordination, maintenance, and sustainment of the existing systems hardware and software to include any necessary Y2K problem resolution; design, test, and installation of a Joint Warning Center (JWC) in Moscow; development and maintenance of a multi-lingual, web-based infrastructure to address Pre-Launch Notification System issues; and site preparation/installation for additional systems, as required.	out of Preside on-specific n National Rec 1 1998, SEW ice (SPO) to mmon SEW? Iution; design?	ntial foreigr nissile warni connaissance S was establ include the S architectu n, test, and i	n policy initing data. The Office (NR lished as a fe use of Feder re; coordinat nstallation o	atives begin ese efforts v (O). Region remal DoD I ally Funded ion, mainter f a Joint Wass, and site p	ning in 1996 vere initially al U.S. CINK rogram with Research & nance, and su rning Center	Arrangem handled on Cs and other of the Air For Developme ustainment of (JWC) in Natallation for the Air For Stallation for the Air For Stallation for Stallation for the Air For Stallation for Stallati	tents are neg an ad hoc be policy make ce as the lea int Corporation f the existin Aoscow; dev radditional	otiated with asis through ers strongly; and service. S ion and Syste g systems harelopment an systems, as	individual the Office of the support these EWS is comprised ems Engineering rdware and id maintenance of required.
999	FY 1999 (\$ in Thousands) \$0 Not Applicable \$0 Total									
5555	FY 2000 (\$ in Thousands) \$1,832 Design, Test and Install Joint Warning Center (JWC) in Moscow to include a Pre-Launch Notification System \$9,700 Develop common architecture and begin installation at existing SEWS sites worldwide \$11,532 Total	Warning Cer	ıter (JWC) i	Narning Center (JWC) in Moscow to include a Pre-Laun and begin installation at existing SEWS sites worldwide	o include a F WS sites wo	re-Launch N xidwide	Votification !	System		
23333	FY 2001 (\$ in Thousands) \$1,200 Continue to normalize a common SEWS architecture \$510 Implement Pre-Launch Notification System in additional countries as required \$2,509 Begin common architecture installation at additional SEWS sites as negotiated by SECDEF via OSD \$4,219 Total	non SEWS a cation Systen istallation at a	rchitecture n in additior additional S	nal countries EWS sites a	as required s negotiated	by SECDEF	² via OSD			
<u>a</u>	Project 674838		Page	Page 1 of 5 Pages	S			ш	Exhibit R-2	Exhibit R-2 (PE 0308699F)
				1567						

	RDT&E BUDGET ITEM JU		ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)		DATE February 2000	y 2000
- 20	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0308699F Share	AND TITLE Shared I	⊌ोगाट Shared Early Warning System	ning Syst	em	PROJECT 674838
9	B. Budget Activity Justification This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems and/or upgrades still in engineering development	nal System De	velopment, be	cause it suppor	ts work on cu	rrently operati	ng systems aı	nd/or upgrades still	in engineering
Ð	C. Program Change Summary (\$ in Thousands)	ds)			0001	000 251		1006 22	F
99	Previous President's Budget (FY 2000 PBR)				0 0	11,532		4,220	TBD
<u> </u>	Adjustments to Appropriated Value a. Congressional/General Reductions				· •		,		
	b. Small Business Innovative Researchc. Omnibus or Other Above Threshold Reprogram	Œ			00				00
	d. Below Threshold Reprogram e. Rescissions				0 0				0 0
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	Ж			000	11,532	2	-1 4,219	TBD TBD TBD
9	Significant Program Changes:								
Ð	D. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000	iousands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
99	AF RDT&E 8,000 PE0305906F, NCMC TW/AA BA7	csumate	Estimate	Esumate	Esumare	Estimate	csimaic	Complete	
E	•	the same ad hal contract aw initial capab	oc arrangemen ard in late-FY(lity in respons	ts as in past ye 00 the ISC2 co e to validated r n the SEWS ar	ars. Beginnin ntract will em equirements.	ig in FY00, tas ploy an evolut Implementatic warning missi	ks will be im ionary spiral on within the	ne ad hoc arrangements as in past years. Beginning in FY00, tasks will be implemented via the Integrate ract award in late-FY00 the ISC2 contract will employ an evolutionary spiral development acquisition st capability in response to validated requirements. Implementation within the ISC2 contract will provide commonality between the SEWS and the missile warning mission already included as part of ISC2. Th	Integrated Space sition strategy provide C.2. This
۵.	synergy will encourage the use of a common system sul Project 674838	em support n	nastructure an Pag	e and reuse of soft Page 2 of 5 Pages	ware compone	ints. The ISC	z contract wi	pport intrastructure and reuse of software components. The 13C2 contract will be a performance-offented Page 2 of 5 Pages	a perrormance-onented Exhibit R-2 (PE 0308699F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE	February 2000
BUI 07	вирсет астииту 07 - Operational System Development 030	PE NUMBER AND TITLE 0308699F Shared Early Warning System	PROJECT 674838
<u> </u>	(U) E. Acquisition Strategy Continued contract vehicle that drives Total System Performance Responsibility to industry.		
<u>e</u>	E. Schedule Profile	FY 200	Y 2001
55555	Lead Service Designation CY2KSS IOC ISC2 Contract Award Complete System Architecture Development Install Pre-Launch Notification System for JWC JWC Site Operational Standardization of additional sites with existing architecture *completed task /X scheduled task. - ISC2 initial contract award will be in Feb 00 with two contractors followed by a r	ture contractors followed by a rolling down select with final award in Aug 00 to one contractor.	2 3 4 X X
	Project 674838 Page 3 of 5 Pages		Exhibit R-2 (PE 0308699F)
	1569		

State Contract C		RDT&F PROGRAM FI EMENT	PAM FIF	MENT/P	BO IECT C	OST RE	PEAKDOV	VN /B-3)		DATE	700	5
Per NuMber Part Number Per Number Pe		NDIGE FING			NOOLO I		וראאס	(C-V) NA		Le	repruary zoou	20
A Project Cost Breakdown (\$ in Thousand\$) A Project Broakdown (\$ in Thou	8UD 07	- Operational System I	Developme	nt		PE NUMBI 030869	ER AND TITLE 19F Shared	Early Wa	rning Sys	tem	id 9	PROJECT 674838
Major Contract Award/Performance Fee System Integrated Regimeering Program Management Administration (PMA) 4 ward/Performance Fee 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(3)		(\$ in Thousand	(इक्				1 VP	000	00C VI	9	EV 2001
Award Performance Fee System Engineering Program Management Administration (PMA) 0 0 Program Management Administration (PMA) Total 0 0 Program Management Administration (PMA) 1.0 m. Management Administration (PMA)	į								222	707 X H	≱ા	EX 2001
AwardPerformance Fee Possible Engineering Program Management Administration (PMA) B. Badget Acquisition History and Planning Information Sin Thousands) B. Badget Acquisition History and Planning Information Contract Contract Contract Contraction Optimizations Performing Optimizations Performing Development Organizations Performing Development Furnished Property: Performing Development Furnished Property: Performing Development Furnished Property: Performing Development Propert	9	Major Contract							0	89'9	7	1,987
System Engineering Program Management Administration (PMA) B. Budget Acquisition History and Planning Information (S in Thousands) B. Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contractor or Contractor (TBD) C Funding Organizations Date of EAC (S in FV 1999) EV 1999 (EV 2000) EV 2000 EV 2000 <td>9</td> <td>Award/Performance Fee</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>518</td> <td>&</td> <td>435</td>	9	Award/Performance Fee							0	518	&	435
Performing Organization Performing Organizations Contract	33	System Engineering Program Management Admin	nistration (PMA						0 0	2,68	85 Q	1,368 429
B. Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contractor Performing Deposition Project Project Project Project Budget	9_								0	11,53	7	4,219
Performing Organizations: Contract Avaid or Contract Performing Contractor Project Activity Office Total Prior Activity Project Total Prior Total Prior Activity Project Total Prior Total	<u> </u>		ry and Plannin	g Informatio	n (S in Thousand	ds)						
Contractor or Contract Contract Contract Project Project Total Prior Budget Budget Budget Budget Budget Budget EY 1999 FY 1999 FY 1999 FY 1999 FY 1999 FY 1999 FY 2000	3											
Government Method/Type Award or Performing Project Total Prior Budget Budget Budget Budget Budget Budget Budget Budget Budget Product Orellogon Type Product Orellogon Product Orellogon Product Orellogon Product Orellogon Product Orellogon Product Orelogon		Contractor or	Contract									
Performing or Funding Obligation Activity Office of FV 1999 FY 1999 FY 2000 FY		Government	Method/Type	Award or	Performing	Project						
Activity Vehicle Date EAC EAC to FY 1999 FY 2000 FY Product Development Organizations ISC2 Contractor (TBD) CP/AF Aug 00 N/A N/A 0 0 2,100 2 SPAWAR MIPR Nov 99 N/A N/A N/A 1,384 3,049 NRO MIPR Dec 99 N/A N/A N/A 672 3,049 Various Crts/Gov Agencies TBD TBD N/A N/A N/A 672 3,049 Various Crts/Gov Agencies TBD N/A N/A N/A 1,764 672 Support and Management Organizations N/A N/A N/A N/A 1,764 672 PMA N/A N/A N/A N/A 1,639 1,639 1,639 PMA N/A N/A N/A N/A N/A 1,639 1,639 N/A N/A N/A N/A N/A 0 0 1,639 <td></td> <td><u>Performing</u></td> <td>or Funding</td> <td>Obligation</td> <td>Activity</td> <td>Office</td> <td>Total Prior</td> <td>Budget</td> <td>Budget</td> <td>Budget</td> <td>Budget to</td> <td>Total</td>		<u>Performing</u>	or Funding	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
Product Development Organizations N/A N/A N/A 0 0 2,100 2 SPAWAR MIPR Nov 99 N/A N/A 0 0 2,10		Activity	Vehicle	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
SC2 Contractor (TBD) CP/AF Aug 00 N/A N/A N/A 0 0 2,100 2 SPAWAR MIPR Nov 99 1,384 1,384 NRO MIPR Dec 99 N/A N/A 0 0 0 1,384 NRO MIPR Dec 99 N/A N/A 0 0 0 0 Support and Management Organizations CPF N/A		Product Development Organiz	zations									
SPAWAR MIPR Nov 99 1,384 NRO MIPR Dec 99 3,049 Various Ctrs/Gov Agencies TBD TBD N/A N/A 0 0 672 Support and Management Organizations CPF Apr 00 N/A N/A 0 0 1,764 A&AS CPR Apr 00 N/A N/A N/A 1,639 1,639 PMA N/A N/A N/A N/A 0 0 1,639 PMA N/A N/A N/A N/A 1,639 1,639 MA N/A N/A N/A 0 0 1,639 M/A N/A N/A N/A N/A 1,639 M/A N/A N/A N/A N/A N/A M/A N/A N/A N/A N/A N/A M/A N/A N/A N/A N/A N/A M/A N/A N/A N/A <		ISC2 Contractor (TBD)	CP/AF	Aug 00	N/A	N/A	0	0	2,100		Continuing	TBD
NRO MIPR Dec 99 N/A N/A N/A 0 0 672 Support and Management Organizations TBD TBD N/A N/A 0 0 672 Support and Management Organizations CPF N/A N/A N/A 0 0 924 A&AS C/R Apr 00 N/A N/A 0 0 1,764 PMA N/A N/A N/A N/A 0 0 1,639 Test and Evaluation Organizations N/A N/A N/A 0 0 1,639 N/A N/A N/A N/A N/A 0 0 1,639 MA N/A N/A N/A N/A 0 0 1,639 N/A N/A N/A N/A N/A N/A 0 0 1,639 Method/Type Award or Awa		SPAWAR	MIPR	Nov 99					1,384			1,384
Various Ctrs/Gov Agencies TBD N/A N/A N/A 0 672 Support and Management Organizations FFRDC CPFF N/A N/A N/A 0 0 924 A&AS C/R Apr 00 N/A N/A 0 0 1,764 PMA N/A N/A N/A N/A 0 0 1,764 PMA N/A N/A N/A N/A 0 0 1,639 Covernment Furnished Property: Contract Award or Award or Budget		NRO	MIPR	Dec 99					3,049			3,049
Support and Management Organizations FFRDC CPFF N/A N/A N/A 0 0 924 A&AS C/R Apr 00 N/A N/A 0 0 1,764 PMA N/A N/A N/A 0 0 1,639 Test and Evaluation Organizations N/A N/A 0 0 1,639 N/A Government Furnished Property: Contract Amard or Method/Type Amard or Method/Type Amard or Method/Type EY 1999 EY 1999 EY 1999 EY 2000 EY Item or Funding Obligation Description Lot EY 1999 EY 1999 EY 2000 EY		Various Ctrs/Gov Agencies	TBD	TBD	N/A	N/A	0	0	672		Continuing	TBD
FFRDC CPFF N/A N/A N/A 0 0 924 A&AS C/R Apr 00 N/A N/A 0 0 1,764 PMA N/A N/A N/A 0 0 1,764 Test and Evaluation Organizations N/A N/A 0 0 1,639 N/A Government Furnished Property: Contract Award or Equal to 1,639 EV.1999 EV.1999 EV.2000 EV. Item or Funding Obligation Delivery LoFY 1999 EV.1999 EV.2000 EV. Description Vehicle Date Date Date EV.2000 EV.		Support and Management Org	anizations									
A&AS C/R Apr 00 N/A N/A 0 0 1,764 PMA N/A N/A N/A 0 0 1,639 Test and Evaluation Organizations N/A N/A 0 0 1,639 N/A Government Furnished Property: Contract Award or Longity Refunding Award or Longity Item or Funding Obligation Delivery Total Prior Budget Budget Budget Description Vehicle Date Date Date FY 1999 FY 1999 FY 2000 FY		FFRDC	CPFF	N/A	N/A	N/A	0	0	924	485	Continuing	TBD
PMA N/A Sovernment Furnished Property: Contract Contract Method/Type Award or Nethod/Type Award or Nethod/Type Date D		A&AS	C/R	Apr 00	N/A	N/A	0	0	1,764	883	Continuing	TBD
Test and Evaluation Organizations N/A Government Furnished Property: Contract Contract Method/Type Award or Item or Funding Obligation Delivery Description Description Description		PMA	N/A	N/A	N/A	N/A	0	0	1,639	429	Continuing	TBD
Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Total Prior Budget Budget Baccription Description Date Date Date Date Date Total Prior FY 1999 FY 2000 FY		Test and Evaluation Organiza N/A	tions									
Method/Type Award or or Funding Obligation Delivery Total Prior Budget Budget Br Vehicle Date Date Date	9		perty:									
or Funding Ubligation Delivery Lotal Filor Budget Budget Bi Vehicle Date Date to FY 1999 FY 1999 FY 2000 FY		;	Method/Type	Award or	: (\$		•	: •	
Doma A of & Doman		ltem Description	or Funding Vehicle	Obligation Date	Date		<u>1 otal Prior</u> to FY 1999	FY 1999	FY 2000	FY 2001	Sudget to Complete	Lotal Program
1 age 7 01 J 1 ages		Project 674838			Pag	Page 4 of 5 Pages	res			Exhibi	Exhibit R-3 (PE 0308699F)	38699F)

RDT&E PROGRAM ELEMENT/PROJECT	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0308699F Shared	⊌ गாட் Shared Early Warning System	rning Sys	tem	id 9	PROJECT 674838
(U) Government Furnished Property Continued: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Product Development Property None Support and Management Property None Test and Evaluation Property None	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	<u>Total Prior</u> to FY 1999 0 0 0	Budget EY 1999 0 0 0	Budget 7,205 7,205 4,327 11,532	Budget EX 2001 2,422 1,797 4,219	Budget to Complete TBD TBD TBD	Total TBD TBD TBD TBD
Project 674838	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0308699F)	(36698)

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PE NUMBER: 0401115F PE TITLE: C-130 AIRLIFT SQUADRONS

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	RDT&E BUDGET ITEM JU	ISTIFIC	ATION	USTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DAIE	Februa	February 2000
BUE 07	вирсет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0401115F C-130	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	AIRLIFT	SQUAD	RONS		
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	0	40,123	60,496	112,976	130,937	105,577	87,659	Continuing	TBD
674726	'26 Avionics Modernization Program (AMP)	0	40,123	60,496	80,252	122,314	100,129	87,659	Continuing	TBD
674885	85 Large Aircraft Infrared Counter Measures (LAIRCM)	0	0	0	32,724	8,623	5,448	0	0	46,795
	Quantity of RDT&E Articles	0	0	0	0	-	2	0	0	0
9	A. Mission Description The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated DOD Navigation/Safety mods, the Global Air Traffic Management (GATM) systems and the C-130 Broad Area Review requirements. These mandated mods are incorporated with various other Reliability, and Sustainability (RM&S) upgrades. AMP modernization will improve C-130 reliability, and will give the C-130 fleet complete access to international air space. The Large Aircraft Infrared Countermeasures System (LAIRCM) will provide advanced defensive capability against IR Man-Portable Air Defense Systems (MANPADS) for large transport and tanker aircraft. LAIRCM is significantly more effective than today's traditional employment of flares. LAIRCM consists of two advanced integrated missile warning systems and an active laser countermeasures system.	consolidates equirement n will impro (LAIRCM) ense System onsists of tv	s and installs s. These ma ve C-130 re will provide is (MANPA)) consolidates and installs the mandated DOD Navigation/Safety mods, the Global Air Traffic Manageme requirements. These mandated mods are incorporated with various other Reliability, Maintainability, an on will improve C-130 reliability, and will give the C-130 fleet complete access to international air space a (LAIRCM) will provide advanced from the complete access to international air space from Systems (MANPADS) for large transport and tanker aircraft. LAIRCM is significantly more effect consists of two advanced integrated missile warning systems and an active laser countermeasures system.	ed DOD Nav s are incorpo I will give th transport ar rissile warni	rigation/Saferrated with vie C-130 flee	ety mods, the arious other of complete craft. LAIR and an active	e Global Ai Reliability, access to int CM is signi e laser coun	Traffic Mai Maintainabh ernational ai ficantly mor	nagement ility, and ir space. e effective than system.
ව	B. Budget Activity Justification These programs are a budget activity 7 - Operational System.	system Dev	elopment be	cause they p	rovide fundi	ng for the m	odernizatio	n of a currer	tly existing	System Development because they provide funding for the modernization of a currently existing and operating
9	C. Program Change Summary (\$ in Thousands)				EV 1000		0006	00C 7G	_	E
999	Previous President's Budget (FY 2000 PBR) Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions				1333		40,600	F 1 2001	5 1 0	10tal Cost 46,795
	b. Small Business Innovative Researchc. Omnibus or Other Above Threshold Reprogramd. Below Threshold Reprogram						-220			
			Page	Page 1 of 10 Pages	S			Ш	xhibit R-2 (Exhibit R-2 (PE 0401115F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	t)	DATE February 2000	, 2000
8UD 07	вироет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	IFT SQUADE	RONS	
©	C. Program Change Summary (\$ in Thousands) Continued	FY 1999	FY 2000	FY 2001	Total Cost
	e. Rescissions f Other		-257		
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR		40,123	60,496 60,496	46,795
<u>9</u>	Significant Program Changes: Congress approved the AF's request to reprogram FY00's \$38.6 million and FY01's \$61.0 million to RDT&E from the Aircraft Procurement account. Congress also added \$2 million to this program in FY00 for an AC-130 Leading Edge Technology program.	1 FY01's \$61.0 million to RDT&l:	E from the Aircral	ft Procurement account. Co	Congress also
	Pag	Page 2 of 10 Pages		Exhibit R-2 (PE 0401115F)	vE 0401115F)

RDT&E BUDGET ITEM JU		ATION S	STIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDGET ACTIVITY O7 - Operational System Development			PE NUMBER 0401115	PE NUMBER AND TITLE 0401115F C-130	AIRLIFT	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	RONS		PROJECT 674726
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674726 Avionics Modernization Program (AMP)	0	40,123	60,496	80,252	122,314	100,129	87,659	87,659 Continuing	TBD

A. Mission Description 9

Sustainability (RM&S) upgrades to include: TCAS, TAWS, replace APN-59 and APQ-175 radars, replace N-1/C-12 compass, provide dual autopilots, install dual flight The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated DOD Navigation/Safety mods, the Global Air Traffic Management (GATM) systems and the C-130 Broad Area Review requirements. These mandated mods are incorporated with various other Reliability, Maintainability, and management systems and provide HF/UHF/VHF datalink. AMP modernization will give the C-130 fleet complete access to international air space.

result in significant support and training inefficiencies. Also, these differences greatly complicate unit/aircraft interoperability at forward locations. The AMP program supportability costs for these 20 different variants are increasing at a rate greater than inflation. AMP will modernize these aircraft with new avionics suites and other The USAF C-130 fleet consists of 15 different mission design series (MDS) to be modified by the Avionics Modernization Program (AMP). Some of these MDSs have multiple variants within each which result in a total of 20 C-130 variants to be modified by AMP. These multiple different models and cockpit configurations standardizes the cockpit configurations and avionics for these 20 different variants by installing a single core avionics package and cockpit configuration, thus eliminating the fleet's significant interoperability and training problems. (Note: the C-130J MDSs are not affected by AMP). Today, the maintainability and cockpit equipment to bring costs down and improve aircrew interoperability.

an orderly sequencing of development and production for the many different kits required for the C-130 fleet. The early kits will be the 'core' kits upon which kits for the The baseline program (described here) modifies the first seven variants of the C-130 fleet for a total of 397 aircraft. The planned FY02 POM follow-on program will development. Some will be in the design phase, while others will be in trial installation, testing, kit proof, or production phases. This waterfall approach will result in more complicated aircraft will be developed. Lessons learned from the early variants will be applied to subsequent variants to reduce program risk and cost. In fund and complete AMP for the remaining 122 aircraft (13 variants in eight different C-130 MDSs). Each variant or group of variants will require a specific kit development and test, then will proceed through development and production serially. During FY02-FY06, these first seven variants will be in some stage of addition, an AF fleet-wide training system will be developed.

rescinded the FY 98 and FY 99 funds (\$1.8M and \$2.7M respectively). However, Congress did approve the AF's request to reprogram FY00's \$38.6 million to RDT&E Note: The C-130 Avionics Modernization Program (AMP) was initially a consolidation of a number of ongoing and planned mods which was funded in FY99 and throughout the FYDP with 3010 appropriations. In the summer of 99, the scope of the AMP program changed and became more complex, thus requiring RDT&E funding. The FY 99 Omnibus requested a \$1.654 million RDT&E reprogramming to begin AMP. The Omnibus was approved, but the FY 00 Appropriations Act from the procurement account. Congress also added \$2M to this program for an AC-130 Leading Edge Technology program.

Exhibit R-2A (PE 0401115F) Page 3 of 10 Pages **Project 674726**

	RDT&E	RDT&E BUDGET ITEM JUS	A JUSTIFI	CATION	TIFICATION SHEET (R-2A Exhibit)	3-2A Exh	ibit)	a	DATE February 2000	y 2000
900 - 20	вирсет Астіvіту 07 - Operational Sys	виреет астилту 07 - Operational System Development	 		PE NUMBER AND TITLE 0401115F C-13 0	PENUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	RLIFT SQ	UADRONS		PROJECT 674726
9	A. Mission Description Continued	on Continued								
999	EY 1999 (\$ in Thousands) \$0 No \$0 Tot	nds) No activity Total								
99	EY 2000 (\$ in Thousands) \$32,000 Beg of c	nds) Begins design and software development for AMP. This includes beginning detailed group A & B design series, hardware/software development of crew station modules/computer simulation, initiate design of system integration lab (SIL), development of training system, and continue CAAP Risk Mitigation flight testing	vare developme/computer simu	nt for AMP. T	'his includes be design of syste	ginning detaile m integration	ed group A & lab (SIL), dev	B design serie elopment of tr	s, hardware/softw aining system, and	are development d continue
933	\$6,123 \$2,000 \$40,123	Program office support (A&AS, SPO, TDY, training and supplies). AC-130 Leading Edge Technology program (Congressional insertion) Total	(A&AS, SPO, Technology pro	SPO, TDY, training and supplies) gy program (Congressional inserti	and supplies). ssional insertion	(u				
99	EY 2001 (\$ in Thousands) \$52,996 Aw hare	Award EMD contract. Continue design and software development. This includes beginning detailed group A & B design series, hardware/software development of crew station modules/computer simulation, initiate design of system integration lab (SIL), development of training system and continue CAAD Distribution flight testing	Continue designation of crevitations of the Parisman CAAD B.	1 and software v station modu	development. les/computer s	This includes imulation, initi	beginning deta	ailed group A system integra	design and software development. This includes beginning detailed group A & B design series, of crew station modules/computer simulation, initiate design of system integration lab (SIL), der A D Biel Mitigation flight testing	velopment of
99	\$7,500 \$60,496	Program office support (A&AS, Total	(A&AS, SPO,	SPO, TDY, training and supplies).	and supplies).					
<u>(</u>	B. Project Change Summary This program is budget activity operational modifications.	B. Project Change Summary This program is budget activity 7, Operational System Development, to support full-rate production and improve the operational capability of the C-130 fleet through operational modifications.	System Develo	pment, to supp	ort full-rate pr	oduction and ir	mprove the op	erational capa	bility of the C-130) fleet through
<u>(2)</u>	C, Other Program Fi	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	Chousands) FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
99	AF RDT&E	O 0	o 0	2,000	esumate 0	o 0	Estimate 0		ompiere 0	2,000
<u>3</u>	PE 41115F, AMP, BP1100	1100				36,000	80,800	187,600	Continuing	Continuing
9	D. Acquisition Strategy The EMD contract will b	D. Acquisition Strategy The EMD contract will be a competitively-awarded Cost		Award Fee to o	Plus Award Fee to develop AMP kits for the first seven variants within the AF C-130 fleet.	its for the first	t seven variant	ts within the A	F C-130 fleet.	
ď	Project 674726			Page	Page 4 of 10 Pages				Exhibit R-2A (PE 0401115F)	PE 0401115F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET (R-2A Exhibit)	February 2000
BUDGET ACTIVITY 07 - Operational System Development 040	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	PROJECT 674726
(U) E. Schedule Profile E. Schedule Profile	EY 1999 EY 2000 4	EX 2001
(U) C-130 Systems Requirements Review (U) C-130 Preliminary Design Review (U) C-130 CAAP PDR (U) C-130 CAAP PDR		*
Project 674726 Pages		Exhibit R-2A (PE 0401115F)

<u></u>	RDT&E PROGRAM ELEMENT		/PROJECT CO	OST BR	COST BREAKDOWN (R-3)	VN (R-3)		DATE F6	February 2000	00
018 018 018	BUDGET ACTIVITY 17 - Operational System Development	∍nt		PE NUMBER AN 0401115F	PE NUMBER AND TITLE 0401115F C-130 A	VIRLIFT S	4D TITLE C-130 AIRLIFT SQUADRONS	NS		РРОЈЕСТ 674726
3	A. Project Cost Breakdown (\$ in Thousands)	ids)	į			FY 1999	666	FY 2000	00	FY 2001
9999	C-130 AMP EMD Program Office Support AC-130 Leading Edge funding Total						0000	32,000 6,123 2,000 40,123	23 23 23	52,996 7,500 0 60,496
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ng Informatic	n (\$ in Thousand	(§)						
9		Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations Prime Contractor (AC-130) CPAF	FY01/01 FY01/01			0	0	32,000 2,000	52,996 0	Continuing 0	TBD 2,000
	Support and Management Organizations Program Support Office				0	0	6,123	7,500	Continuing	TBD
	Test and Evaluation Organizations TBD						0	0	Continuing	TBD
<u> </u>		Award or Obligation Date	Delivery <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Product Development Property N/A				0	0	0	0	Continuing	TBD
_	Support and Management Property N/A				0	0	0	0	Continuing	TBD
	Project 674726		Pag	Page 6 of 10 Pages	sə			Exhit	Exhibit R-3 (PE 0401115F)	.01115F)

RDT&E PROGRAM ELEMENT/PROJECT CO	I/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY OP - Operational System Development	PE NUMBER AND TITLE 0401115F C-130 <i>A</i>	ФТІТІЕ C-130 AIRLIFT SQUADRONS	QUADRO	NS.	. 9	PROJECT 674726
(U) Government Furnished Property Continued: Test and Evaluation Property TBD Subtotals Subtotal Product Development Subtotal Test and Evaluation Total Project		Budget EY 1999 0 0 0 0	0 Budget FY 2000 34,000 6,123 0 40,123	9 Budget FY 2001 52,996 7,500 0 60,496	Continuing Budget to Complete TBD TBD TBD TBD	TBD Total Total Total Total TBD TBD TBD TBD TBD TBD TBD
Project 674726	Page 7 of 10 Pages			Exhibi	Exhibit R-3 (PE 0401115F))1115F)

	RDT&E	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	MOIT	SHEET (R-2A E	xhibit)		DATE		February 2000
8UDG 07 -	вирсет АстіvітУ 07 - Operational Sys i	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER AN 0401115F	PE NUMBER AND TITLE 0401115F C-130	4D TITLE C-130 AIRLIFT SQUADRONS	SQUAD	RONS		PROJECT 674885
	COST (\$ in	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674885		Large Aircraft Infrared Counter Measures (LAIRCM)	0	0	0	32,724	8,623	5,448	0	0	46,795
(£)	A. Mission Description The Large Aircraft Infra (MANPADS) for large t intervention after the sys multi-service Operations	A. Mission Description The Large Aircraft Infrared Countermeasures System (LAIRCM) will provide advanced defensive capability against IR Man-Portable Air Defense Systems (MANPADS) for large transport and tanker aircraft. LAIRCM is significantly more effective than today's traditional employment of flares. It will require no operator intervention after the system is activated. LAIRCM consists of two advanced integrated missile warning systems and an active laser countermeasures system. There is a multi-service Operational Requirements Document (ORD) LAIRCM ORD 314-92, validated on 3 Aug 98.	(LAIRCM) LAIRCM is consists of tv ORD) LAI	will provid significantl vo advance RCM ORD	e advanced or y more effect integrated is 314-92, vali	lefensive caj tive than toc nissile warn idated on 37	oability agai lay's traditio ing systems Aug 98.	nst IR Man- nal employr and an activ	Portable Air nent of flare e laser coun	Defense Syss. It will req	stems uire no operator system. There is a
	LAIRCM will first be C-17 LAIRCM fundin Phase II will modify a	LAIRCM will first be deployed on a small number of C-17 and C-130 aircraft. KC-135s are the next aircraft in the planned follow-on group. FY01 is the first year for C-130 funding. LAIRCM is divided into two phases. The first phase equips 20 aircraft (12 C-17s and 8 C-130s). Phase II will modify an additional 59 aircraft. Funding and kit procurement for Phase II is planned to begin in FY05.	f C-17 and C -130 funding ng and kit pr	-130 aircral . LAIRCM ocurement	ft. KC-135s I is divided in for Phase II i	are the next ito two phas s planned to	aircraft in thes. The first begin in FY	te planned for t phase equij 705.	ollow-on gro os 20 aircraf	oup. FY01 is t (12 C-17s a	the first year for nd 8 C-130s).
	Installation of this syst LAIRCM, the first C-1 funds will be used for	Installation of this system will increase the survivability of strategic aircraft when operating in areas with IR MANPADS threats. The C-17 will be first to receive LAIRCM, the first C-17 mod will be completed in FY03. Since this system will integrate existing subsystems, initial deployment should be achieved by FY03. RDT&E funds will be used for non-recurring engineering (NRE) and integration test and evaluation.	lity of strateg Y03. Since t Œ) and integ	gic aircraft v his system gration test g	when operati will integrate and evaluatio	ng in areas v existing sul n.	vith IR MAN osystems, in	VPADS thre itial deployr	ats. The C-1	17 will be firs be achieved l	st to receive by FY03. RDT&E
	This is an FY01 NEW	This is an FY01 NEW START program with notification made simultaneously here and in the C-17's descriptive summary.	ıtion made si	multaneous	ly here and i	n the C-17's	descriptive	summary.			
<u> </u>	FY 1999 (\$ in Thousands) \$0 No \$0 Tot	<u>nds)</u> No activity Total									
555	FY 2000 (\$ in Thousands) \$0 No \$0 Tot	<u>nds)</u> No activity Total									
555_	FY 2001 (\$ in Thousands) \$0 No \$0 Tot	<u>nds)</u> No activity Total									
Ą	Project 674885			Page	Page 8 of 10 Pages	es			û	chibit R-2A (Exhibit R-2A (PE 0401115F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	T ITEM	JUSTIFI	CATION	SHEET (F	8-2A Ext	libit)	DATE	TE February 2000	, 2000
<u>B</u> 20	ВUDGET АСТІVITY 17 - Operational System Development	opment			PE NUMBER AND TITLE 0401115F C-130	AND TITLE C-130 A	IRLIFT SQ	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS		РРОЈЕСТ 674885
9	B. Project Change Summary This program is budget activity 7, Operational System Development, for continuing producibility and performance improvements to support full-rate production and increase the operational capability of the C-130 fleet through programmed modifications.	erational S the C-130	system Develo fleet through p	pment, for con rogrammed m	tinuing produci	bility and per	rformance impr	covements to sup	pport full-rate pro	oduction and
9	C. Other Program Funding Summa E)	mary (\$ in T EY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99	AF RDT&E PE 41130F, C-17 RDT&E	0	0	45,298	29,451	11,497	7,824	0	0	94,070
99	Other APPN PE 41130F, C-17	0	0	0	33,100	51,200	48,600	6,200	7,000	146,100
9	Procurement (BP1100) PE 41115F, C-130 Procurement (BP1100)	0	0	0	0	33,400	48,900	6,000	7,000	95,300
9	D. Acquisition Strategy The C-130 LAIRCM acquisition strategy is yet to be determined. It is anticipated that it will be a competitive bid process	egy is yet 1	to be determin	ed. It is anticip	ated that it will	be a competi	itive bid proces	Š		
9	E. Schedule Profile				FY 1999	4	FY 2000	2000 3 4	EX 1 2	EY 2001
9	Phase I EMD: 2 Qtr FY02			•						
									£ 6 2 3 3 4	
	Project 674885			Pag	Page 9 of 10 Pages				Exhibit K-2A (PE 0401115F)	E 0401115F)
					1581					

	RDT&E PROGRAM ELEMENT	RAM ELE		PROJECT C	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
90E	BUDGET ACTIVITY 17 - Operational System Development	Developmer	=		PE NUMBE 040111	PE NUMBER AND TITLE 0401115F C-130 AIRLIFT SQUADRONS	VIRLIFT SO	QUADRO	SN	9	PROJECT 674885
3	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(<u>s</u>)				FY 1999	666	FY 2000	0	FY 2001
96	196E							3		1	
3 (3		rv and Plannin	g Informatio	n (\$ in Thousand	ত্র						
<u> </u>	Performing Organizations: Contractor or	Contract									
	Government Performing	Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Product Development Organizations	<u>Vehicle</u> zations	<u>Date</u>	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Support and Management Organizations Test and Evaluation Organizations	ganizations <u>itions</u>									
<u>e</u>	Government Furnished Property:	perty:									
		Method/Type	Award or	:			•	•		; -	E
	Item Description	or Funding Vehicle	Obligation Date	<u>Delivery</u> Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Sudget to Complete	Lotal Program
	Product Development Property	 ≰									
	Support and Management Property Test and Evaluation Property	operty									
	Test and Evaluation 1 topers					Total Prior	Budget	Budget	Budget	Budget to	Total
	Subtotals					to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Subtotal Product Development	nt									
	Subtotal Support and Management	ement									
	Total Project										
	Project 674885			Page	Page 10 of 10 Pages	rges			Exhibi	Exhibit R-3 (PE 0401115F)	01115F)

PE NUMBER: 0401119F PE TITLE: C-5 Airlift Squadrons

OT - Operational System Development FY 1999 FY 2000 FY 2000 FY 2001 FY 2002 FY 2003 FY 2004 FY 2005 Cost to Actual Estimate Estimate Estimate Fix similate Fix sim	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JUSTIFIC	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
FY 1999 FY 2000 FY 2001 FY 2002 FY 2003 FY 2004 FY 2005 Actual Estimate Estimate Estimate Estimate Estimate Estimate 37,348 59,122 92,530 135,619 101,942 18,817 0 37,348 40,356 44,901 46,508 235 0 0 0 18,766 47,629 89,111 101,707 18,817 0 2 0 0 2 0 0 0 0	BUDGET ACTIVITY 107 - Operational System Development			PE NUMBER 0401119	R C-5 A	irlift Squ	adrons			
Total Program Element (PE) Cost 37,348 59,122 92,530 135,619 101,942 Avionics Modernization Program 37,348 40,356 44,901 46,508 235 Reliability Enhancement & Reengining Program 0 18,766 47,629 89,111 101,707 Quantity of RDT&E Articles 2 0 2 0	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Avionics Modernization Program 37,348 40,356 44,901 46,508 235 Reliability Enhancement & Reengining Program 0 18,766 47,629 89,111 101,707 Quantity of RDT&E Articles 2 0 2 0	Total Program Element (PE) Cost	37,348	59,122	92,530	135,619	101,942	18,817	0	0	448,565
Reliability Enhancement & Reengining Program 0 18,766 47,629 89,111 101,707 Quantity of RDT&E Articles 2 0 0 2 0		37,348	40,356	44,901	46,508	235	0	0	0	172,535
	1	0	18,766	47,629	89,111	101,707	18,817	0	0	276,030
	Quantity of RDT&E Articles	2	0	0	2	0	0	0	0	4

D. A. Mission Description

and replaces aging mechanical instruments in the engine and flight systems. Many control systems will be unsupportable within five years. A GATM capability, which Flight Control System (AWFCS) Reliability Improvement Program, the C-5 Avionics Modernization Program redesigns the avionics system architecture to support the command and control capabilities will also be incorporated in the AMP design. The integration of TCAS and TAWS Nav Safety enhancements in AMP satisfies great and Collision Avoidance System (TCAS). The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system Navigation Safety equipment: Terrain Awareness and Warning System (TAWS) [formerly Enhanced Ground Proximity Warning System (EGPWS)] and Traffic Alert congressional interest to reduce the threat of mid-air collisions and controlled flight into terrain. The TCAS portion is accelerated to complete ahead of the rest of the 574495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort of the C-5. Formerly called the C-5 All-Weather AWFCS Reliability Improvement Program and Global Air Traffic Management (GATM) requirements. AMP also installs Secretary of Defense (SECDEF) directed Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards 'free flight' capability. Connectivity to Mobility encompasses communications, navigation, and surveillance requirements, will be concurrently incorporated into the aircraft to meet current and future International AMP mod (by FY02). Two AMP RDT&E test articles are funded in FY99 for flight test and installed in 1Q FY02. 674835: Reliability Enhancement and Reengining Program (RERP): Phase II comprehensive modernization of the C-5 improves aircraft reliability, maintainability and increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase auxiliary power units, electrics, hydraulics, landing gear, fuel system, airframe, fire suppression system, and pressurization/air conditioning system). Two RDT&E test reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially available (COTS) turbofan engine with payload capability, improve transportation system throughput and decrease engine removals. Numerous other system/reliability 'Bad Actors' will be addressed (e.g. availability. The goal of RERP is to achieve C-5 wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while articles are funded in FY02 for flight test and installed in FY04.

Page 1 of 12 Pages

Exhibit R-2 (PE 0401119F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibit	()	DATE Febru	February 2000
BUDG 07 -	вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	Squadrons		
(D)	B. Budget Activity Justification 674495: Avionics Modernization Program (AMP): This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.	d of low technical risk efforts sup	pporting fielded w	eapons systems and, t	herefore, was
	674835; Reliability Enhancement and Reengining Program (RERP): This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.	oject is comprised of low techni nent.	cal risk efforts sup	porting fielded weapo	ons systems and,
9	C. Program Change Summary (\$ in Thousands)	FY 1999	FY 2000	FY 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Annonriated Value	33,594	63,041	56,416	463,999
<u>3</u>	Adjustments to Appropriated Value a. Congressional/General Reductions	142	, Çi		
	b. Small Business Innovative Research	-1,066	0		
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram	3,545 1,484	-325 0		
	e. Rescissions f Other	-209	-591 0		
<u>(</u>	Adjustments to Budget Years Since FY 2000 PBR	0	0	36,114	-15,434
9	Current Budget Submit/FY 2001 PBR	37,348	59,122	92,530	448,565
9	Significant Program Changes: Since FY00 PB: - C-5 AMP contract awarded 22 Jan 1999. Cost delta between the negotiate	between the negotiated contract price and the AMP procurement funds budgeted in FY01, FY02 and FY03 of the	rocurement funds	oudgeted in FY01, FY	02 and FY03 of the
	FY00 PB were realigned to KD1&E for AIMF and KEKF. Other cost differences in AIMF procurement funds in the outgets were inoved to NEAF procurement. - RERP RDT&E funds in FY04 and FY05 of the FY00 PB were realigned to RERP procurement.	ences in AMI procurement o RERP procurement.	s III the outyears w	ere inovea to near p	TOCAL CITICAL:
	Page	Page 2 of 12 Pages		Exhibit R-2	Exhibit R-2 (PE 0401119F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	USTIFIC,	ATION (SHEET ((R-2A E	xhibit)		DATE		February 2000
97. 07.	BUDGET ACTIVITY O7 - Operational System Development			PE NUMBER AN 0401119F	PE NUMBER AND TITLE 0401119F C-5 A	ытты C-5 Airlift Squadrons	adrons			PROJECT 674495
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674495	495 Avionics Modernization Program	37,348	40,356	44,901	46,508	235	0	0	0	172,535
9	A. Mission Description 674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort of the C-5. Formerly called the C-5 All-Weather Flight Control System (AWFCS) Reliability Improvement Program, the C-5 Avionics Modernization Program redesigns the avionics system architecture to support the AWFCS Reliability Improvement Program and Global Air Traffic Management (GATM) requirements. AMP also installs Secretary of Defense (SECDEF) directed Navigation Safety equipment: Terrain Awareness and Warning System (TAWS) [formerly Enhanced Ground Proximity Warning System (EGPWS)] and Traffic Alert and Collision Avoidance System (TCAS). The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging mechanical instruments in the engine and flight systems. Many control systems will be unsupportable within five years. A GATM capability, which encompasses communications, navigation, and surveillance requirements, will be concurrently incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards 'free flight capabilities will also be incorporated in the AMP design. The integration of TCAS and TAWS Nav Safety enhancements in AMP satisfies great congressional interest to reduce the threat of mid-air collisions and controlled flight into terrain. The TCAS portion is accelerated to complete ahead of the rest of the AMP mod (by FY02). Two AMP RDT&E test articles are funded in FY99 for flight test and installed in IQ FY02.	Phase I of an vement Prograbal Air Traffind Warning SVFCS portion ngine and flig veillance requion Administratorated in the ir collisions are fund.	Air Force p am, the C-5. ic Managem system (TAV of AMP repl ht systems. irements, wil ation (FAA) at AMP desig at controlled ed in FY99 f	lanned two-l Avionics Mc ent (GATM) VS) [formerl laces low rel Many contro Il be concurr requirement m. The integ of flight into to	phase moder odernization requirementy Enhanced liability Line of systems wently incorp is and to progration of TC errain. The carain. The	rization effe Frogram rec fs. AMP als Ground Pro: Replaceabli ill be unsupp orated into th gress toward ZAS and TA TCAS portic	ort of the C-designs the a so installs Se ximity Warr e Units (LR) portable with the aircraft to is 'free flight (WS) Nav Salon is acceler 22.	5. Formerly vionics systeretary of Dining System (Js) in the au in five years o meet currer capability. Fety enhance ated to comp	called the C em architecth efense (SEC (EGPWS)] a ttomatic fligh s. A GATM nt and future Connectivit ments in Ab	
99933	FY 1999 (\$ in Thousands) \$10,241 System Engineering / Program IN \$22,804 AMP Kit Design / Development \$2,512 Prototype Fabrication / Install \$1,791 Mission Support \$37,348 Total	am Management nent all	ent							
<u> </u>	\$8,300 (\$ in Thousands) \$8,300 System Engineering / Program M \$24,672 AMP Kit Design / Development \$5,200 Prototype Fabrication / Install \$2,184 Mission Support \$40,356 Total	am Management nent all	ent							
Ľ.	Project 674495		Page	Page 3 of 12 Pages	.es		:	Ä	chibit R-2A	Exhibit R-2A (PE 0401119F)
				1505						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	SET ITEN	A JUSTIFI	CATION	SHEET (R-2A Exh	libit)	Ď	DATE February 2000	y 2000
BUE 07	вирсет астіліту 07 - Operational System Development	velopmen	t t		PE NUMBER AND TITLE 0401119F C-5 A	AND TITLE - C-5 Airli	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	ns		PROJECT 674495
(3)	A. Mission Description Continued	ned								
55555	FY 2001 (\$ in Thousar \$8,200 \$24,100 \$10,200 \$2,401 \$44,901	lds) System Engineering / Program N AMP Kit Design / Development Prototype Fabrication / Install Mission Support Total	lds) System Engineering / Program Management AMP Kit Design / Development Prototype Fabrication / Install Mission Support Total	sment						
9	 B. Project Change Summary Since FY00 PB: C-5 AMP contract awarded 22 Jan 1999. Cost delta betv FY00 PB were realigned to RDT&E for AMP and RERP. 	Jan 1999. Cc ÆE for AMP	sst delta betwee and RERP. Ot	n the negotiat ther cost differ	ed contract pric ences in AMP	e and the AMI procurement fi	P procurement unds in the out	funds budgete years were mo	between the negotiated contract price and the AMP procurement funds budgeted in FY01, FY02 and FY03 of the QP. Other cost differences in AMP procurement funds in the outyears were moved to RERP procurement.	and FY03 of the curement.
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	mmary (\$ in] FY 1999 Actual	Thousands) EY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	<u>Total Cost</u>
333										
(£)	Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	10,327	27,676	59,578	114,750	131,531	21,854	2,500	0	368,216
<u> </u>		0	0	0	17,300	128,725	318,519	486,024	Continuing	_
	Project 674495			Pag	Page 4 of 12 Pages	S			Exhibit R-2A (PE 0401119F)	PE 0401119F)
					7871					

	RDT&E BUDGET ITEM JUS	T ITEN	1 JUSTIFI	CATION	TIFICATION SHEET (R-2A Exhibit)	3-2A Exh	libit)	Ō	DATE Febr u	February 2000	
10 PUL	BUDGET ACTIVITY 07 - Operational System Development	opment			PE NUMBER AND TITLE 0401119F C-5 A	AND TITLE	ID TITLE C-5 Airlift Squadrons	suc		PROJECT 674495	ест 195
9	C. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000 Actual Estimate	nary (\$ in T FY 1999 Actual	Chousands) EY 2000 Estimate	EY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete		Total Cost
9	Traffic Management (GATM) RDT&E, AF, BA-7	24,882	6,402	8,508	9,496	7,567	7,720	7,872			TBD
9	D. Acquisition Strategy Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed-Martin) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRU) and software to meet C-5 performance and Global Air Traffic Management (GATM) requirements, update existing C-5 engineering and technical data, develop interface control specifications based on performance requirements, prototype the new system, and support ground and flight testing. AMP contract awarded to the Lockheed-Martin/Honeywell team on 22 January 1999. \$9.7M in FY99 procurement was added in the FY00 PB to accelerate Traffic Alert and Collision Avoidance System (TCAS) installations ahead of the rest of AMP. TCAS installs scheduled to complete in FY02.	rogram acc ne replace: lechnical d ract awarde	quisition strategable units (LRI able units develop in ed to the Lockh unce System (Tu	y establishes ()) and softwar erface control eed-Martin/H CAS) installati	strategy establishes a single integrating contractor (Lockheed-Martin) to modify and qualify integrated s (LRU) and software to meet C-5 performance and Global Air Traffic Management (GATM) requirem slop interface control specifications based on performance requirements, prototype the new system, and Lockheed-Martin/Honeywell team on 22 January 1999. \$9.7M in FY99 procurement was added in the tem (TCAS) installations ahead of the rest of AMP. TCAS installs scheduled to complete in FY02.	ting contractor performance at based on perfi on 22 January re rest of AMI	r (Lockheed-Mad Global Air ormance requir 1999. \$9.7M	fartin) to modi: Fraffic Manage rements, protot in FY99 procu	fy and qualify ement (GATM ype the new sy urement was ac o complete in	integrated) requirement: ystem, and sur dded in the FY	s, pport 00 PB
9	E. Schedule Profile			-	FY 1999 2 3	4	EY.2	FY 2000 2 3 4	-	FY 2001 2 3	4
5555555555	Acquisition Strategy Panel (FY97/4) Contract Award Preliminary Design Review (PDR) Critical Design Review (CDR) TCAS Kit Installations Start TCAS Kit Installations End (FY02/4) AMP Prototype Installation Start First Flight (FY02/1) Developmental Test Start (FY02/1 - FY02/4) Production Installation Start (FY02/4) Prod Installation Complete (FY06/1) * = completed event X = planned event) FY02/4)			*		××	×		×	·
	Project 674495			Pag	Page 5 of 12 Pages				Exhibit R-2	Exhibit R-2A (PE 0401119F)	19F)

	RNT&F PROGRAM FI FMENT	FI EMENT/P	/PROJECT C	OST BR	COST BREAKDOWN (R-3)	/N (R-3)		DATE Fe	February 2000	00
BUD(BUDGET ACTIVITY Or Operational System Development			PE NUMBER AN 0401119F	PENUMBER AND TITLE 0401119F C-5 Airl	ID TITLE C-5 Airlift Squadrons	ons		9	PROJECT 674495
<u> </u>	A. Project Cost Breakdown (\$ in Thousands)	ousands)) XX	Ş	EV 2000		FV 2001
9	System Engineering / Program Management	ement				10,241	741	8,300	3 O 6	8,200
3333	AMP Kit Design / Development Prototype Fabrication / Install Mission Support Total					22,804 2,512 1,791 37,348	304 312 791 448	24,672 5,200 2,184 40,356	7 0 4 5	2,4,100 10,200 2,401 44,901
3	B. Budget Acquisition History and Planning Information (§ in Thousands)	lanning Informatic	n (S in Thousand	(ত্ব						
9	Performing Organizations: Contractor or Government Performing Activity Vehicle	t. /Type Award or. ling Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Product Development Organizations WR-ALC/LA ASC/GRA C/CPAF	F Jan 99		5,970 159,954	1,170	1,200	1,200 39,156	1,200 43,304	1,200	5,970 160,187
	Support and Management Organizations Test and Evaluation Organizations 418 Test Squadrn (Edwards AFFTC AFB)	Su				81		397	. 5,900	6,378
9		2t I/Ype Award or ling Obligation ? Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget EY 2001	Budget to Complete	<u>Total</u> Program
	N/A Project 674495		Рар	Page 6 of 12 Pages	ges			Exhib	Exhibit R-3 (PE 0401119F)	01119F)
	710000 01 730									

RDT&E PROGRAM ELEMENT/PROJ	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	rlift Squad	rons		id 9	РRОЈЕСТ 674495
(U) Government Furnished Property Continued: Test and Evaluation Property N/A	Total Prior	Budget FV 1000	Budget	Budget FY 2001	Budget to Complete	Total Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation	3,187	37,267 81	40,356	44,504	40,843	166,157
Subtotal Test and Evaluation Total Project	3,187	37,348	40,356	44,901	46,743	172,535
Project 674495	Page 7 of 12 Pages			Exhib	Exhibit R-3 (PE 0401119F)	01119F)

	RDT&E BUDGET ITEM JUS	TEM JU	STIFIC.	ATION (TIFICATION SHEET (R-2A Exhibit)	(R-2A E	xhibit)		DATE	February 2000	ry 2000
BUDG 07	BUDGET ACTIVITY 17 - Operational System Development	ment			PE NUMBER 0401119	PE NUMBER AND TITLE 0401119F C-5 A	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	adrons			PROJECT 674835
	COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674835	35 Reliability Enhancement & Reengining Program	rogram	0	18,766	47,629	89,111	101,707	18,817	0	0	276,030
9	A. Mission Description 674835: Reliability Enhancement and Reengining Program (RERP): Phase II comprehensive modernization of the C-5 improves aircraft reliability, maintainability and availability Enhancement and Reengining Program (RERP): Phase II comprehensive modernization of the C-5 improves aircraft reliability, while availability. The goal of RERP is to achieve C-5 wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially available (COTS) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability, improve transportation system throughput and decrease engine removals. Numerous other system/reliability 'Bad Actors' will be addressed (e.g. auxiliary power units, electrics, hydraulics, landing gear, fuel system, airframe, fire suppression system, and pressurization/air conditioning system). Two RDT&E test articles are funded in FY02 for flight test and installed in FY04.	eengining Pre tieve C-5 war This effort cel toise complia on system thr cs, landing ge t and installeg	ogram (RER time mission aters around nce. These oughput ancer, fuel sys d in FY04.	(P): Phase I n requireme d replacing T new engine d decrease en	I comprehen nts by incres FF-39 engine is (along with ngine remov.	sive modern sing fleet av s with a mon n new pylom als. Numero	uization of th zailability (n re reliable, c s, wing attac ous other sys m, and press	ne C-5 impre nission capal commercially. th fittings an stem/reliabili.	oves aircraft: ble rate, depo y available ((d upgrades, ity 'Bad Act r conditionin	reliability, marture reliabil COTS) turbol and thrust rev ors' will be ac ng system). T	aintainability and ity) while fan engine with versers) increase diressed (e.g. wo RDT&E test
999	FY 1999 (\$ in Thousands) \$0 No Activity \$0 Total										
55555	FY 2000 (\$ in Thousands) \$7,000 System Engineering / Program Management \$10,400 RERP Kit Design / Development \$1,366 Mission Support \$1,366 Total	ing / Program 1 / Developm	. Manageme ent	nt							
999999	FY 2001 (\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\	ing / Progran: 1/ Developm ation / Install	ı Manageme ent	ent							
Δ.	Project 674835			Page	Page 8 of 12 Pages	Ses.			மி	xhibit R-2A (Exhibit R-2A (PE 0401119F)
					000						

	RDT&E BUDGET ITEM JUS	ET ITEN	JUSTIF	CATION	TIFICATION SHEET (R-2A Exhibit)	3-2A Exh	libit)	Δ	DATE Februa	February 2000
97 07 04	вирсет астилту 07 - Operational System Development	/elopment			PE NUMBER AND TITLE 0401119F C-5 A	AND TITLE	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	suc		PROJECT 674835
9	 B. Project Change Summary C-5 AMP contract awarded 22 Jan 1999. Cost delta between the negotiated contract price and the AMP procurement funds budgeted in FY01, FY02 and FY03 of the FY00 PB were realigned to RDT&E for AMP and RERP. Other cost differences in AMP procurement funds in the outyears were moved to RERP procurement. RERP RDT&E funds in FY04 and FY05 of the FY00 PB were realigned to RERP procurement. 	Jan 1999. Cos &E for AMP a and FY05 of tl	st delta betwee ind RERP. Oi he FY00 PB w	n the negotiate her cost differ ere realigned t	ed contract pric ences in AMP 1 o RERP procur	e and the AMI procurement fi	P procurement unds in the out	funds budgete years were m	ed in FY01, FY02 oved to RERP pro	and FY03 of the curement.
<u> </u>	(U) C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	nmary (\$ in T FY 1999 Actual	Thousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	EY 2005 Estimate	Cost to Complete	Total Cost
3 333	AF RDT&E Other APPN PE# 0401119F/C-5 Airlift Squadrons Aircraft Procurement, AF,	0	0	0	17,300	128,725	318,519	486,024	Continuing	
5 5		10,327	27,676	59,578	114,750	131,531	21,854	2,500	0	368,216
(2)	D. Acquisition Strategy Reliability Enhancement and Reengining Program (RERP): Program acquisition strategy is to consider every opportunity to utilize commercially available components and processes to: modernize C-5 products and processes to meet or exceed required system performance and support, so as to renew the weapon system until 2040. The program acquisition strategy also seeks to construct a government/industry 'partnership' to identify solutions, assign responsibility and execute to achieve AMC requirements. RERP will use fleet availability, ownership cost and system performance to balance solutions against program cost.	ngining Progra products and p seeks to const a availability,	am (RERP): P processes to me ruct a governn ownership cos	rogram acquis et or exceed r nent/industry ' ₁	ition strategy is equired system partnership' to i	to consider e performance a dentify solutic	very opportuni and support, so ons, assign rest ons against pro	ty to utilize cc as to renew th consibility and gram cost.	mmercially avail ne weapon system execute to achier	able components 1 until 2040. The 7e AMC
<u> </u>	E. Schedule Profile				FY 1999		EY	FY 2000	a	FY 2001
ш.	Project 674835			Pag	Page 9 of 12 Pages				Exhibit R-2A (Exhibit R-2A (PE 0401119F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ICATION SHEET (R-2A Exhibit)	DATE February 2000
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT 674835
(U) E. Schedule Profile Continued	FY 1999 FY 2000	EY 2001 4 1 2 3 4
 (U) Acquisition Strategy Panel (ASP) (U) Pre-EMD Contract Award (U) Milestone II / DAB (U) EMD Contract Award (U) EMD Start (U) First Protoype Flight (FY04/2) (U) EMD Complete (FY05/1) (U) MS IIIA (FY08/1 - A Model Prod Decision) (U) MS IIIB (FY08/1 - A Model Prod Decision) * = completed event X = planned event 		×××
Project 674835	Page 10 of 12 Pages	Exhibit R-2A (PE 0401119F)

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BF	EAKDOV	VN (R-3)		DATE Fe	February 2000	00
BUD 07	BUDGET ACTIVITY 07 - Operational System Development	Developme	=		PE NUMBE 040111	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	lift Squad	rons		9	PROJECT 674835
<u>(5</u>	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(Sp				FY 1999	666	FY 2000	0(FY 2001
533	System Engineering / Program Management RERP Kit Design / Development Prototype Fabrication / Install	m Management nent 1					1	000	7,000 10,400 0	100c	13,380 23,583 7,670
33	Mission Support Total							0 0	1,366	.	2,996 47,629
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Informatic	on (\$ in Thousand	(ব্						
9	Performing Organizations: Contractor or Government Performing Activity Product Development Organizations WR-A I C	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	<u>Total Prior</u> to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	ASC/GRA (Pre-EMD) FFP ASC/GRA (EMD) CPAF Support and Management Organizations Test and Evaluation Organizations 418 Test Squadrn (Edwards AFFTC AFB)	FFP CPAF ganizations ations AFFTC	Feb 2000 Nov 2000	TBD	TBD	0 0	0 0	18,766	0 47,629	209,635	18,766 257,264
<u> </u>	Government Furnished Property: Cont Meth Item Or Fu Description Product Development Property N/A	pperty: Contract Method/Type or Funding Vehicle ty	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Project 674835			Page	Page 11 of 12 Pages	ıges			Exhib	Exhibit R-3 (PE 0401119F)	01119F)

RDT&E PROGRAM ELEMENT/PRO	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
BUDGET ACTIVITY One rational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	lift Squad	rons		<u>9</u>	PROJECT 674835
CD Government Furnished Property Continued: Support and Management Property N/A Test and Evaluation Property N/A Subtotals Subtotals Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999 0	Budget FY 1999 0	Budget EY 2000 18,766	Budget EY 2001 47,629 47,629	Budget to Complete 209,635 209,635	Total Program 276,030 276,030
				:		
Project 674835	Page 12 of 12 Pages			Exhib	Exhibit K-3 (PE 0401119F)	01119F)

PE NUMBER: 0401130F PE TITLE: C-17 Aircraft

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - O	BUDGET ACTIVITY OP - Operational System Development			PE NUMBER 0401130	PE NUMBER AND TITLE 0401130F C-17 Aircraft	Aircraft				
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	120,368	159,019	176,439	139,443	119,217	117,722	112,056	0	6,845,199
672569	C-17 Aircraft	120,368	159,019	131,141	109,992	107,720	109,898	112,056	0	6,751,129
674886	674886 Large Aircraft Infrared Counter Measures (LAIRCM)	0	0	45,298	29,451	11,497	7,824	0	0	94,070
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

A. Mission Description 9

can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. The load possible to the user's specified final destination. The C-17 will also use standard airfields and delivery modes. The C-17 is specifically designed to provide U.S. combat forces maximum flexibility in the selection of landing sites and support of ground forces after landing. Consequently the C-17 will land with up to 160,000 lbs payload Airlift provides a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. The C-17 options include troops and/or outsized/oversized/palletized cargo. The C-17 is designed to provide direct delivery of those cargo loads to austere airfields, as close as on austere runways as small as 3,000 feet by 900 feet. The Large Aircraft Infrared Countermeasures System (LAIRCM) will provide transport and tanker aircraft an effective, active defense against shoulder-launched IR missiles.

B. Budget Activity Justification 3

This program is budget activity 7, Operational System Development, because the program has completed Milestone III and is continuing producibility and performance improvements to support full-rate production and increase the operational capability of the C-17 through programmed modifications.

\in	(I) C. Program Change Summary (\$ in Thousands)				
		FY 1999	FY 2000	FY 2001	Total Cost
\mathbb{S}	Previous President's Budget (FY 2000 PBR)	118,228	170,718	132,307	6,766,584
33	Appropriated Value	119,069	170,718		
3	Adjustments to Appropriated Value				
,	a. Congressional/General Reductions	-470	-9,809		
	b. Small Business Innovative Research	-3,683			
	c. Omnibus or Other Above Threshold Reprogram	9,480			
		Page 1 of 11 Pages		Exhibit R-2	Exhibit R-2 (PE 0401130F)

L	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	SHEET (R-2 Exhibi	t)	DATE February 2000	y 2000
BUDK 07	вирсет астіліту 07 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Aircraft	aft		
E	C. Program Change Summary (\$ in Thousands) Continued	FY 1999	FY 2000	FY 2001	Total Cost
55	 d. Below Threshold Reprogram e. Rescissions f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR 	-3,355 -673 120,368	-1,017 -873 159,019	44,132 176,439	78,615
9	Significant Program Changes: A second project, 674886, has been added to the C-17 for the Large Aircraft FY03.	for the Large Aircraft Infrared Countermeasures (LAIRCM). Three aircraft have been moved from FY01 to	IRCM). Three airc	craft have been moved fro	m FY01 to

	Page	Page 2 of 11 Pages		Exhibit R-2 (PE 0401130F)	PE 0401130F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC,	ATION S	знеет (R-2A E	xhibit)		DATE	February 2000	y 2000
BUD(07.	BUDGET ACTIVITY 17 - Operational System Development			PE NUMBER 0401130	PE NUMBER AND TITLE 0401130F C-17 Aircraft	Aircraft				PROJECT 672569
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672569	69 C-17 Aircraft	120,368	159,019	131,141	109,992	107,720	109,898	112,056	0	6,751,129
9	A. Mission Description A. Mission Description A. Mission Description A. Mission Description Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Additional airlift capability is needed for rapid deployment of national objectives. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. The C-17 provides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retring the aging C-141 fleet from the Air Force inventory. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into this century. RDT&E efforts support productivity enhancements and product improvements, including correction of Operational Test & Evaluation (OT&E) deficiencies.	to continger f meeting U. ciated with t perform the rovides a vas Not only can mission wel.	o contingencies on shormeeting U.S. mobility a ated with the airlift mis erform the entire spect vides a vast increase in ot only can the C-17 de ussion well into this ce (OT&E) deficiencies.	rt notice any requirement: ssion include rum of airlif 1 overall airl: sliver outsize	where in the s. Additiona deployment missions at iff capability cargo to au &E efforts si	world. It is a lairlift capa t, employme and is specific necessary to stere tactical upport produ	a major ele bility is nee nt (airland a cally design o replace an I environme	ment of Ameded for rapid and airdrop), ed to operate d exceed the nts, but it als incements ar	erica's nation I deployment sustaining su effectively a capabilities so reduces grand nd product im	no contingencies on short notice anywhere in the world. It is a major element of America's national security meeting U.S. mobility requirements. Additional airlift capability is needed for rapid deployment of combat forces iated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in ovides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retiring lot only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during nission well into this century. RDT&E efforts support productivity enhancements and product improvements, (OT&E) deficiencies.
999999	\$65,461 Continue Performance Improvement Development & Testiing \$27,330 Systems Engineering / Program Management \$16,935 Contractor System Test & Evaluation \$10,642 Producibility Enhancement / Performance Improvement (PE/PI) Government Flight Test \$120,368	rement Deve m Managem iluation erformance	ent Improvemen	Testiing nt (PE/PI) G	overnment F	light Test				
55555	FY 2000 (\$ in Thousands) \$105,669 Continue Performance Improvement Development & Testing \$26,950 Systems Engineering / Program Management \$16,400 Contractor System Test & Evaluation \$10,000 Producibility Enhancement / Performance Improvement (PE/PI) Government Flight Test \$159,019 Total	rement Deve m Managem aluation Performance	ent ent Improveme	Testing nt (PE/PI) G	overnment F	light Test				
	Project 672569		Page	Page 3 of 11 Pages	es			Ä	thibit R-2A (Exhibit R-2A (PE 0401130F)
				1,003			i			

	RDT&E BUDGET	ET ITEM	JUSTIFI	CATION	ITEM JUSTIFICATION SHEET (R-2A Exhibit)	R-2A Exh	libit)	/Q	DATE February 2000	2000
BUDG 07	вирсет астіліту 07 - Operational System Development	elopment			PE NUMBER AND TITLE 0401130F C-17	PE NUMBER AND TITLE 0401130F C-17 Aircraft	craft			PROJECT 672569
(£)	A. Mission Description Continued	Į.								
999999	FY 2001 (\$ in Thousands) \$74,441 Continue Pe \$27,300 Systems Eng \$19,400 Contractor S \$10,000 Producibility \$131,141 Total	dds) Continue Performance Improvement I Systems Engineering / Program Mana Contractor System Test & Evaluation Producibility Enhancement / Perform Total	Ids) Continue Performance Improvement Development & Testing Systems Engineering / Program Management Contractor System Test & Evaluation Producibility Enhancement / Performance Improvement (PE/I Total	evelopment & ement ice Improvem	Ids) Continue Performance Improvement Development & Testing Systems Engineering / Program Management Contractor System Test & Evaluation Producibility Enhancement / Performance Improvement (PE/PI) Government Flight Test Total	vernment Fligh	ıt Test			
9	B. Project Change Summary Funding: A second project, 674886, has been added to the C-17 for the Large Aircraft InfraRed Countermeasures (LAIRCM).	6, has been a	ded to the C-	17 for the Larg	ye Aircraft Infr	aRed Countern	neasures (LAI	RCM).		
9	C. Other Program Funding Summary (\$ in Thousands)	mary (\$ in T	housands)							
· /		EY 1999 Actual	FY 2000 Fstimate	EX 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	EX 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
<u>(</u>	APAF, MYP, BA02, 2 PF0401130F	2,873,045	3,354,888	2,890,655	3,253,498	2,406,997	1,485,765	2,234,336		36,734,324
<u>E</u>	APAF, Initial Spares, BA06,	109,921	0	0	0	0	0	0		842,938
5	APAF, A/C Mods, BA05, pE0401130F	51,250	95,040	97,124	150,901	175,957	231,194	254,331		1,197,256
9	MilCon, Facilities, PE0401130F	70,956	26,100	13,700	0	0	0	0		367,631
Ð	D. Acquisition Strategy The C-17 Acquisition Strategy is based on five separate contracts to support the entire scope of the C-17 weapon system. These five contracts are: 1) a multi-year procurement (MYP) aircraft contract (to economically purchase the full complement of production aircraft) - (APAF); 2) a Producibility Enhancement and Performance Improvement (PE/PI) contract (to develop cost reduction changes, capability enhancements, and design fixes to service-revealed problems) - (RDT&E, AF); 3) a Flexible Sustainment (field support) contract (to support the current and future fielded aircraft) - (APAF); 4) a MYP engine contract (for Government Furnished Equipment [GFE] engines) - (APAF); and 5) a set of simulator and training contracts: two aircrew training systems (ATS) contracts (for aircrew simulators & training), and a maintenance training device contract (for devices & maintenance of same) - (APAF).	ased on five solut (to econon develop cost roll); to support set of simula cot (for device)	separate contra nically purchas eduction chan the current an tor and trainin s & maintenar	cts to support is the full comges, capability I future fielded g contracts: the of same) -	the entire scop plement of pro enhancements 1 aircraft) - (Al wo aircrew trai (APAF).	e of the C-17 v duction aircraft, and design find PAF); 4) a MY ning systems (weapon syster ft) - (APAF); 2 xes to service- P engine conti ATS) contract	a. These five control and the	contracts to support the entire scope of the C-17 weapon system. These five contracts are: 1) a multi-year nuchase the full complement of production aircraft) - (APAF); 2) a Producibility Enhancement and Perform n changes, capability enhancements, and design fixes to service-revealed problems) - (RDT&E, AF); 3) a Fl ent and future fielded aircraft) - (APAF); 4) a MYP engine contract (for Government Furnished Equipment training contracts: two aircrew training systems (ATS) contracts (for aircrew simulators & training), and a intenance of same) - (APAF).	
	The Congressionally-mandated Mobility Requirements	bility Requir	ements Study	(MRS), initial	ly forwarded tα	Congress on	23 Jan 92 and	updated on 28	Study (MRS), initially forwarded to Congress on 23 Jan 92 and updated on 28 Mar 95, validated the need for the	
<u>п</u>	Project 672569			Pag	Page 4 of 11 Pages	S			Exhibit R-2A (PE 0401130F)	E 0401130F)

	RDT&E BUDGET ITEM JUSTIFICATION	ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2000
BUDGET 07 - O	BUDGET ACTIVITY 17 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Aircraft	PROJECT 672569
(U) D. C. C. Application of the contraction of the	oard (D raft pro ations t aft total 5. Four 1 Specia	AB) decisions, contained in the 3 Nov 95 and 1 Feb 96 USD(A&T) Acquisition Decision Memoranda (ADMs), duction program and pursue a multi-year procurement for the last 80 aircraft. The FY96 Supplemental Act approved a 7-year MYP program. The Air Force is proceeding with an 80-aircraft MYP program (along witl purchase at the maximum affordable rate (FY97-03 Quantity: 8-9-13-15-12-15-8), beginning with the teen additional C-17s have been programmed at the end of the 80-aircraft MYP (FY03 +1, FY04 +5, FY05 +8) is Operations Low Level (SOLL) II aircraft and meet requirements not included in the 120 aircraft program. The	tion Decision Memoranda (ADMs), t. The FY96 Supplemental i0-aircraft MYP program (along with 2-15-8), beginning with the YP (FY03 +1, FY04 +5, FY05 +8) to ided in the 120 aircraft program. The
(U) E.	E. Schedule Profile	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	FY 2001 4 1 2 3 4
23333	Lot XI (13 aircraft) Lot XII Adv Proc (15 aircraft) Lot XII (15 aircraft) Lot XIII (12 aircraft) Lot XIII (12 aircraft) Lot XIV Adv Proc (15 aircraft) * = completed event - contract obligation X = planned event - contract obligation	× ×	××
Proj	Project 672569	Page 5 of 11 Pages	Exhibit R-2A (PE 0401130F)

	RDT&E PROGRAM ELEMENT	SRAM ELE		PROJECT C	OST BR	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
8UD	BUDGET ACTIVITY 107 - Operational System Development	Developme	<u> </u>	:	PE NUMBER AN 0401130F	PE NUMBER AND TITLE 0401130F C-17 Aircraft	ircraft			9	PROJECT 672569
3	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(§)				FY 1999	666	FY 2000	0	FY 2001
999	Contractor Furnished Engineering & Test Government Test & Other Government Costs (OGC) Total	ering & Test overnment Costs	(OGC)				109,213 11,155 120,368	113 155 168	146,399 12,620 159,019	1000	120,421 10,720 131,141
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ory and Plannin	g Information	(\$ in Thousan	(sp						
Ð	Performing Organizations:										
·		Contract	•								
	Government Performing	Method/Type or Funding	<u>Award or</u> Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	EX 1999	EX 2000	FY 2001	Complete	Program
	Product Development Organizations	izations	:	,	4		Ċ			c	27000 3
	Boeing	C,FPI/FP	8/31/81	5,190,366	5,190,366	5,190,366	0	146 290	120 221	96£ 66£	3,190,500
	Boeing	CCPFF	7/13/95	1,025,425	1,025,425	25,073	0,001	140,471	177,071	0	25,346
	Roeing	C.FPI	4/14/89	83,885	83,885	83,885	0			0	83,885
	Pratt & Whitney	FP+EPA	4/18/95	8,306	8,306	7,506	400	100	200	100	8,306
	Support and Management Organizations	ganizations					٠	,	•		i c
	Mission Support OGC	PO				97,389	113	120	120	240	786,76
	Site Activation OGC	PO				1,539	0 99,	0	007		1,339
	Miscellaneous					21,958	400	7,500	000	•	62,430
	Test and Evaluation Organizations	ations				105 966	10.642	10 000	10 000	40 000	297,233
	o	5 8				10.022	10,01	20,61	60	0	10.252
	Wright Labs/Amold Eng	5				10,01				•	
	Other	PO				3,030				0	3,030
	Droject 672560			ď	Page 6 of 11 Pages	ges			Exhibi	Exhibit R-3 (PE 0401130F)	01130F)
	riged or 2303				20000	226					

RDT&E PROGRAM ELEMENT/PROJECT (/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0401130F C-17 Aircraft	rcraft			.9 .9	PROJECT 672569
(U) Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Date Product Development Property None Support and Management Property	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget EY 2001	Budget to Complete	<u>Total</u> Program
None Test and Evaluation Property None Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999 5,540,176 120,886 239,873 5,900,935	Budget EY 1999 109,213 513 10,642 120,368	Budget FY 2000 146,399 2,620 10,000 159,019	Budget EY 2001 120,421 720 10,000 131,141	Budget to Complete 399,426 240 40,000 439,666	Total Program 6,315,635 124,979 310,515 6,751,129
Project 672569 Pa	Page 7 of 11 Pages			Exhibi	Exhibit R-3 (PE 0401130F)	1130F)

	RDT&E BUDGET ITEM JUS	JSTIFIC,	ATION	TIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	Februa	February 2000
BUDG 07 -	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0401130F C-17	PENUMBER AND TITLE 0401130F C-17 Aircraft	Aircraft		:		PROJECT 674886
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674886	6 Large Aircraft Infrared Counter Measures (LAIRCM)	0	0	45,298	29,451	11,497	7,824	0	0	94,070
6	A. Mission Description The Large Aircraft Infrared Countermeasures System (LAIRCM) provides advanced defensive capability against Man-Portable Air Defense Systems (MANPADS) for large transport and tanker aircraft. LAIRCM is significantly more effective than the traditional employment of flares, and requires no operator intervention after it is turned on. LAIRCM consists of two advanced integrated missile warning systems and an active laser countermeasures system. There is a multi-service Operational Requirements Document (ORD) LAIRCM ORD 314-92, validated 3 Aug 98. Installation of this system will increase the survivability of strategic aircraft when operating in areas with MANPADS IR threats. Since this system will integrate subsystems, initial deployment should be achieved by FY03. RDT&E funds will be used for non-recurring engineering (NRE) and integration test and evaluation.	n (LAIRCM) ificantly mor rated missile 314-92, valid ce this system ration test an	provides ace effective the warning system of Aug 9	lvanced defe han the tradii stems and an 98. Installati ate subsyster	nsive capabi ional emplo active laser on of this sy ns, initial de	lity against yment of fla countermea stem will in ployment sh	Man-Portablures, and request sures system crease the sucrease the sucould be achimological to the sucould be achimological such the such that such	le Air Defen uires no ope 1. There is a urvivability ieved by FY	ise Systems (rator intervei multi-servic of strategic a 03. RDT&E	MANPADS) for ntion after it is to Operational ircraft when funds will be
999	FY 1999 (\$ in Thousands) \$0 No Activity \$0 Total									
999	FY 2000 (\$ in Thousands) \$0 No Activity \$0 Total									,
9999	FY 2001 (\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\	aft integratio) TDY, traini	n for existin ng and supp	g subsystem lies)	ώ					
<u> </u>	B. Project Change Summary LAIRCM is a NEW START in FY01.									
Д	Project 674886		Page	Page 8 of 11 Pages	es			Û	chibit R-2A (Exhibit R-2A (PE 0401130F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	T ITEM	I JUSTIFI	CATION	SHEET (I	R-2A Ext	ibit)	/ <u>a</u>	DATE Februa	February 2000
BUD 07	BUDGET ACTIVITY 107 - Operational System Development	opment			PE NUMBER AND TITLE 0401130F C-17	PE NUMBER AND TITLE 0401130F C-17 Aircraft	rcraft			PROJECT 674886
<u>e</u>	C. Other Program Funding Summary (S in Thousands) EX 1999 EX 2000 Actual Estimate	mary (\$ in T FY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99	C-130 RDT&E	0	0	32,724	8,623	5,448	0	0	0	46,795
39	Other APPN PE 41130F, LAIRCM	0	0	0	33,100	51,200	48,600	6,200	7,000	146,100
<u>(</u>	Procurement, BP 1100 PE, 41115F, C-130 Procurement, BP1100	0	0	0	0	33,400	48,900	000'9	7,000	95,300
9	D. Acquisition Strategy The LAIRCM system for the first 12 C-17s will probably be a sole source to Boeing since aircraft is currently in production in order to facilitate initial deployment in FY03.	C-17s will	probably be a	sole source to	Boeing since a	ircraft is curre	ently in produc	tion in order to	facilitate initial	deployment in
<u>G</u>	E. Schedule Profile			-	EY 1999 2 3	4	EY 2	EY 2000 2 3 4	1 2 円 2	FY 2001 2 3 4
99	Phase I - EMD Phase II -First Installation: FY03/3								×	
μ.	Project 674886			Pag	Page 9 of 11 Pages	2			Exhibit R-2A (Exhibit R-2A (PE 0401130F)

	RDT&E PROGRAM ELEMENT	EMENT/PR	/PROJECT COST BREAKDOWN (R-3)	JST BE	EAKDOV	VN (R-3)		DATE Fe	February 2000	00
90 04	вирсет астилту 07 - Operational System Development	int		PE NUMBER AI 0401130F	PE NUMBER AND TITLE 0401130F C-17 Aircraft	rcraft			. •	РРОЈЕСТ 674886
9	A. Project Cost Breakdown (\$ in Thousands)	(spi				FY 1999	666	FY 2000	Q	FY 2001
993	Performance Development Systems Engineering/Program Management Total						0 0 0		1000	41,898 3,400 45,298
9	B, Budget Acquisition History and Planning Information (\$ in Thousands)	ng Information	(\$ in Thousands	છ						
Ð	Performing Organizations: Contract Government Performing Activity Activity	Award or Obligation Date	Performing Activity FAC	Project Office FAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Procram
	Development Organiz ontractor: TBD	FY01/3			0	0	0	41,898	42,372	84,270
	Support and Management Organizations SPO	FY01/1			0	0	0	3,400	6,400	9,800
	Test and Evaluation Organizations TBD				0	0	0	0	0	0
9	Government Furnished Property: Contract Contract Method/Type Item Or Funding Description Vehicle Product Development Property N/A Support and Management Property N/A Test and Evaluation Property N/A	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Project 674886		Page	Page 10 of 11 Pages	səği			Exhib	Exhibit R-3 (PE 0401130F)	.01130F)

RDT&E PROGRAM ELEMENT/PROJE	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	e
BUDGET ACTIVITY	PE NUMBER AND TITLE	·			E 6	PROJECT
07 - Operational System Development	0401130F C-17 Aircraft	Vircraft	:			6/4886
	Total Prior	Budget	Budget	Budget	Budget to	Total
Subtotals	to FY 1999	EX 1999	FY 2000	1007 X 3	Complete	Program
Subtotal Product Development	0	0	0	41,898	42,372	84,270
Subtotal Support and Management	0	0	0	3,400	6,400	6,800
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	0	0	0	45,298	48,772	94,070
Project 674886	Page 11 of 11 Pages			Exhibi	Exhibit R-3 (PE 0401130F)	1130F)

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Project Activity Odd 1244 Air Cargo Material	RDT&E BUDGET ITEM JU		ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	chibit)		DATE	Februa	February 2000	
For Zoon State Estimate Est	BUDG 07	SET ACTIVITY Operational System Development			PE NUMBER 0401214	RAND TITLE	argo Mat∈	eriel Han	dling (46	:3-L)	PROJECT 675150
85 F	,	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
A G	67515		456	493	0	0	0	0	0	0	8,898
P _Z		Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	9
Expression to the string analysis for preproduction testing; GFE/GFP for preproduction testing; travel supporting preproduction \$435 Acquire and test preproduction test articles \$456 Total Every 2000 (\$ in Thousands) \$493 FY 2001 (\$ in Thousands) \$493 Total FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total Page 1 of 4 Pages	6	A. Mission Description This program element contains a project integral to th NGSL, which alleviates critical loader deficiencies at capacity) program supports acquisition and delivery cairlift 463-L (pallet) movement system. The NGSL rhandling capacity at smaller, but operationally vital p interface with Wide-Body Aircraft (WBA). This imp conjunction with both the 40K and 25K loaders to set 25K loaders. Starting in FY97, the Air Force realign program element, which also contains the procurement	the Air Force and provides of a minimu replaces agir peacetime an proved capal arvice WBA.	's ability to 1 the Air Forc m requireme ng 25K loade of contingen sility eliminx The NGSL,	mobilize for the with a state ent of 264 loners and comporting and comporting cy airfields. ates the currate along with the ling from PE	ces and equi e-of-the-art aders that, w olements the More impol ent requirem the Tunner,	pment world tactical loade //ith the Tunn Tunner fleet rtantly, the N lent for a flee will eventual Common Su	wide. It inver capability er (60K), wiet (by providir IGSL has a story of wide-both replace all proport Equip	olves testing for the futur ill form the bag increased high reach cody elevator Ill of the 40K ment Develchment	s, developing re. The NGS backbone of deployabilit apability req loader equif loaders and	
FY 2000 (\$ in Thousands) \$493 Engineering analysis for preproduction testing; GFE/GFP for preproduction testing; travel supporting preproduction \$493 Total FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total Project 675150 Page 1 of 4 Pages	3333	esau Tuousai	roduction tes on test article	sting; GFE/C s	3FP for prep	roduction te	sting; travel	supporting p	reproduction	n testing	
FY 2001 (\$ in Thousands) \$0 No Activity \$0 Total Page 1 of 4 Pages	999	000 (\$ in Thousar	roduction tes	sting; GFE/C	3FP for prep	roduction te	sting; travel	supporting p	oreproduction	n testing	
Page 1 of 4 Pages	999	2001 (\$ in Thousar									
	<u>с</u>	roject 675150		Page	e 1 of 4 Page	SS				Exhibit R-2	(PE 0401214F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	M JUSTIF	CATION	SHEET (R-2 Exhi	bit)	/Q	DATE February 2000	, 2000
97 - 70	вирсет астіліту 07 - Operational System Development			PE NUMBER AND TITLE 0401214F Air C	PE NUMBER AND TITLE 0401214F Air Cargo Materiel Handling (463-L)	o Materiel	Handling	(463-L)	РРОЈЕСТ 675150
(2)	B. Budget Activity Justification Acquisition of the NGSL to support operational mobility aircraft requires no significant development effort; therefore, it is categorized as BA-7, operational system development.	l mobility airc	aft requires no	significant de	relopment effo	rt; therefore, it	is categorizec	l as BA-7, operatio	onal system
<u>(2</u>	C. Program Change Summary (\$ in Thousands)	(spi			FY 1999	FY 2000		FY 2001	Total Cost
55	Previous President's Budget (FY 2000 PBR) Appropriated Value				482	502 502			7,439
<u> </u>	Adjustments to Appropriated Value a. Congressional/General Reductions				-30	9			
	b. Small Business Innovative Researchc. Omnibus or Other Above Threshold Reprogramd. Below Threshold Reprograme. Rescissions	ram			-23	ć.			
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	BR			456	493			8,898
9	Significant Program Changes: None								
9	D. Other Program Funding Summary (\$ in Thousands) EX 1999 FY 2000 Actual Estimate	[housands] FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	EX 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
333	AF RDT&E Other APPN Other Procurement, AF, BA-2, WSC 825150, Next Generation Small Loader, PE 0401214F	699'6	24,144	59,170	59,010	29,421		0	181,414
ш.	Project 675150		Pa	Page 2 of 4 Pages				Exhibit R-2 (PE 0401214F)	E 0401214F)
ĺ									

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	(R-2 Exhibit) PATE February 2000
8UDG 07 -	BUDGET ACTIVITY 07 - Operational System Development 040121	PENUMBER AND TITLE PROJECT 0401214F Air Cargo Materiel Handling (463-L) 675150
(£)	E. Acquisition Strategy The NGSL (25K pound capacity) program supports acquisition and delivery of a minimum requirement of 264 loaders that, with the Tunner (60K), will form the backbone of the Global Reach airlift 463-L (pallet) movement system. Currently, the Air Force uses a 30-year-old 25K loader with an extremely low mean time between failure (approx. 10 hours). Additionally, the 25K loader lacks high reach capability and requires a separate wide body elevator loader (a fixed based high lift transfer platform) to off/on load KC-10 and Civil Reserve Air Fleet (CRAF) Wide-Body Aircraft (WBA). Upgrading the current loader fleet with the NGSL will correct the critical high-reach shortcomings of existing 25K loaders and will provide increased flexibility to ensure the Air Force meets its global mobility commitments. The NGSL program has selected two Non-Developmental Item (NDI) loader manufacturers to build three loaders each. Loaders will compete in a 'drive-off' competition, and the winner will be awarded a follow-on production contract (Firm Fixed Price).	requirement of 264 loaders that, with the Tunner (60K), will form the force uses a 30-year-old 25K loader with an extremely low mean time between quires a separate wide body elevator loader (a fixed based high lift transfer WBA). Upgrading the current loader fleet with the NGSL will correct the lity to ensure the Air Force meets its global mobility commitments. The build three loaders each. Loaders will compete in a 'drive-off competition, and
()	F. Schedule Profile $rac{\mathrm{FV}}{1999}$	9 EY 2000 EY 2001
55555	NGSL Program Transition to ASC Test article contract award Competitive drive-off (start) LRIP Award First Delivery Full-Rate Production *Denotes completed milestone X Denotes planned milestone	
ជ	Project 675150 Pages	s Exhibit R-2 (PE 0401214F)
	1609	

	RDT&E PROGRAM ELEMENT	M ELE		/PROJECT CC	ST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	00
BUDGE 07 - (вирсет астіvіту 07 - Operational System Development	elopmer	1t		PE NUMBER AN 0401214F		וס דודרם אס דודרם אס דודרם אס דודרם אס Tricle Air Cargo Materiel Handling (463-L)	el Handlin	g (463-L)	9	PROJECT 675150
E	A. Project Cost Breakdown (\$ in Thousands)	1 Thousand	(হ্য				FY 1999	666	FY 2000	0	FY 2001
5. 5.5	Acquire and test preproduction articles Test monitoring, engineering tech. order development,	ticles . order deve		SPO travel, equipment, program	, program		4.	21 435	493		0
_ 	management support. Total						4	456	493		0
(E)	B. Budget Acquisition History and Planning Information (\$ in Thousands)	nd Plannin	g Information	(\$ in Thousands	~						
5	Performing Organizations: Contractor or	Contract									
91 P4 9	Government Met' Performing or E Activity Veh	Method/Type or Funding Vehicle	<u>Award or</u> Obligation <u>Date</u>	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Product Development Organizations WR-ALC/LEA ASC/SMG FFP/P	ations FFP/PR FFP/PR	FY98/2 FY99/1			643 6,578	21			00	643 6,599
7 0.	d Management Org	FFP/PR anizations	FY00/4			400	435	493		0	1,328
	Technical Support Contract					328				0	328
	Test and Evaluation Organizations	(/a				Total Prior	Budget	Budget	Budget	Budget to	Total
0.1, 0.1	<u>Subtotals</u> Subtotal Product Development					7,621	456	493	L1 2001		8,570
• • • • • • • • • • • • • • • • • • • •	Subtotal Support and Management Subtotal Test and Evaluation	t.				328				0	328
_	Total Project					7,949	456	493		0	8,898
ď	Project 675150			Page	Page 4 of 4 Pages	žes			Exhibi	Exhibit R-3 (PE 0401214F)	01214F)

	RDT&	RDT&E BUDGET ITEM JU		ATION	SHEET	STIFICATION SHEET (R-2 Exhibit)	hibit)		DATE	February 2000	ry 2000
80DG 07 -	вирсет Астіvіту 07 - Operational Sys	BUDGET ACTIVITY OF - Operational System Development			PE NUMBER AND TITLE 0401218F KC-13	PE NUMBER AND TITLE 0401218F KC-135s	.5s		·		РРОЈЕСТ 674494
	COST (\$ ir	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674494	4 KC-135 Aging Aircraft Program	aft Program	1,018	2,242	487	484	490	499	510	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
9	A. Mission Description This program, in part, suplarea of aging aircraft, to ir examines individual aircra Maintenance efficiency an data for incorporation into component support as weleconomic decision points.	A. Mission Description This program, in part, supports the aging aircraft corrosion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include structural, corrosion, fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program proactively examines individual aircraft systems for potential impacts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate data for incorporation into the KC-135 Economic Life Study planned for FY00. The KC-135 Economic Life Study consists of studies for structure, systems, and component support as well as cost benefit analyses to support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on economic decision points.	osion and faratigue, and pacts due to surfare aging ?	tigue project stress correaging compourcraft effor ned for FY0 Analysis of Ana	t CORAL Rosion crackir control or the trackir to maintal for the KC-Alternatives	EACH. COl ng. Addition USAF will to in the KC-13 135 Econom (AOA). The	RAL REAC ally, the Fur utilize these is as a viabli nic Life Stud e AOA addr	H studies in actional Syst activities to e airframe. 'y consists or esses replace	clude the an: tem Integrity improve KC CORAL RE f studies for ement sched	sion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing effort fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program proactively acts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depture aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide as Study planned for FY00. The KC-135 Economic Life Study consists of studies for structure, systems, and support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 ba.	sion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program proactively acts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot ture aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate Study planned for FY00. The KC-135 Economic Life Study consists of studies for structure, systems, and support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on
55555	EY 1999 (\$ in Thousands) \$270 Cor \$534 Fun \$214 Mis	unds) Corrosion/crack growth rate and fatigue determination and testing Functional Systems Integrity Program (FSIP) Mission support/contractor support Total	nd fatigue de rogram (FSI rport	termination P)	and testing		•				
555555	FY 2000 (\$ in Thousands) \$100 Cor \$950 Fur \$192 Mis \$1,000 Ecc \$2,242 Tot	ands) Corrosion/crack growth rate and fatigue determination and testing Functional Systems Integrity Program (FSIP) Mission support/contractor support Economic Service Life Study Total	nd fatigue de 'rogram (FS) pport	termination (P)	and testing						
ď.	Project 674494			Page	Page 1 of 5 Pages	Š			ш	:xhibit R-2 (Exhibit R-2 (PE 0401218F)

	RDT&E BUDGET ITEM JU	JUSTIF	ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)	I .	DATE February 2000	ry 2000
80D 07	вирдет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0401218F KC-1 3	PE NUMBER AND TITLE 0401218F KC-135s				PROJECT 674494
9	A. Mission Description Continued								
55555	FY 2001 (\$\frac{\$}\$ in Thousands) \$192 Corrosion/crack growth rate and fatigue determents \$50 Basic materials test and predictive technique \$245 Mission support/contractor support \$487 Total	e and fatigue dictive tech support	fatigue determination and testing /e technique ort	and testing					
9	B. Budget Activity Justification This effort is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.	; a fielded w	eapon system	and, therefore,	is assigned to	Budget Activi	ty 7, Operatic	onal Systems Deve	elopment.
9	C. Program Change Summary (\$ in Thousands)	a			EV 1000	EV 2000		FV 2001	Total Cost
55	Previous President's Budget (FY 2000 PBR) Appropriated Value				1,090	2,268 2,268 2,268		492	TBD TBD
9	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions f. Other				-3 -33 -33 -6	-14	4 0		180 180 180 180 180 181 181
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR				1,018	2,242	2	-5 487	TBD
9	Significant Program Changes: N/A.								
<u> </u>	D. Other Program Funding Summary (\$ in Tho FY 1999] Actual	ousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
99_	AF RDT&E Other APPN								
ш.	Project 674494		Pag	Page 2 of 5 Pages				Exhibit R-2 (F	Exhibit R-2 (PE 0401218F)
				9,5,7					

RDT&E BUDGET ITEM JUSTIFICATIO	ITEM JUSTIFICATION SHEET (R-2 Exhibit)	TE February 2000
ВИDGET АСТІVІТУ 07 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135s	PROJECT 674494
(U) E. Acquisition Strategy The acquisition strategy consists primarily of separate task orders (with separate statements of work) ranging from fixed price to cost plus contracts. These task orders address a myriad of aging aircraft activities against existing contract vehicles, such as the SPO-managed KC-135 Fleet Support Contract and Design Engineering Program contracts managed through the Air Logistics Centers.	rate statements of work) ranging from fixed price to cost plus, such as the SPO-managed KC-135 Fleet Support Contract	us contracts. These task orders t and Design Engineering
(U) E. Schedule Profile	FY 1999 FX 2000 2 3 4	EX 2001 1 2 3 4
(U) Corrosion & Fatigue Testing (U) Materials Test & Predictive Tech. (U) FSIP (U) Mission Support (U) Begin Economic Service Life Study * - On-going activities X - Scheduled activities	×	
Project 674494	Page 3 of 5 Pages	Exhibit R-2 (PE 0401218F)

	RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	NN (R-3)		DATE F e	February 2000	00
BUD(07 -	вирсет астилту 07 - Operational System Development	Developme	nt		PE NUMBE 040121	PE NUMBER AND TITLE 0401218F KC-135s	js				РРОЈЕСТ 674494
Ð	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp				EV 1000	000	EV 2000		EV 2001
53	Corrosion/crack growth determination and testing	mination and te	sting]``	270 270	10	100	192
33333	basic materials test and predictive technique Functional Systems Integrity Program (FSIP) Mission support/contractor support Economic service life study Total	ctive technique Program (FSIP) pport					1	0 534 214 0 1,018	0 950 192 1,000 2,242	0 50 00 42	50 0 245 0 0 487
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	1 (S in Thousand	ন্ত্র						
<u> </u>	Performing Organizations: Contractor or	Contract									
	nent ing	Ivpe ng	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Product Development Organizations	Vehicle zations	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
···	Boeing	C/KC-135	Oct 97-	TBD	TBD	2,022	992	2,056	250	Continuing	TBD
	,	Fleet Support SS/FFP	Mar 01								
	ARINC, Frontier, other Design support contractors Engineerin	ranizations Design Engineering	Oct 97- Mar 01		·	148	109	98	237	Continuing	TBD
		Program (DEP) C/FP									
	Test and Evaluation Organizations FAA, Wright Labs, etc.	tions Project	Oct 97-			100	143	100		Continuing	TBD
		Order/MPIR	Mar 01							0	
مَ	Project 674494			Pag	Page 4 of 5 Pages	es			Exhib	Exhibit R-3 (PE 0401218F)	01218F)

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RDT&E PROGRAM ELEMENT/PROJECT	JECT COST BREAKDOWN (R-3)	NN (R-3)		DATE Fe	February 2000	9
BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0401218F KC-135s				PF 6	PROJECT 674494
<u>Subtotals</u> Subtotal Product Development	Total Prior to FY 1999 2,022	图出	Budget FY 2000 2,056	Budget FY 2001 250	Budget to Complete TBD	Total Program TBD
Subtotal Support and Management Subtotal Test and Evaluation Total Project	148 100 2,270	109 143 1,018	86 100 2,242	237	TBD TBD TBD	TBD TBD
Project 674494	Page 5 of 5 Pages			EXPID	Exhibit K-3 (PE 0401218F)	1218F)

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	USTIFIC	ATION	SHEET	(R-2 Ex	hibit)		DATE	February 2000	ry 2000
BUDK 07	вирсет астилту 07 - Operational System Development			PE NUMBER AN 0401219F	PE NUMBER AND TITLE 0401219F KC-10S	S				РВОЈЕСТ 674496
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674496	96 KC-10 GATM	9,447	23,331	19,526	0	0	0	0	0	52,304
	Quantity of RDT&E Articles	0	1	0	0	0	0	0	0	1
£	A. Mission Description Global Air Traffic Management (GATM) is based on evolving Communication, Navigation and Surveillance (CNS) and Free Flight concepts. Key elements of its architecture are Flight Management System (FMS), Dual Multi-Mode Receiver (MMR), Dual Communications Management Unit (CMU), Communications Datalinks (HF, VHF, SATCOM). Communications upgrades include a data link to augment/replace voice communications. The navigation capabilities include a fully integrated GPS and advanced flight management system. The surveillance capabilities include automatic aircraft position reporting (both enroute and oceanic).	1 evolving C. Jual Multi-N nclude a data rurveillance	ommunicati Iode Receiv I link to aug	on, Navigatio rer (MMR), I ment/replace include autor	on and Surve Jual Commi voice comn	eillance (CN mications M nunications.	S) and Free lanagement The naviga porting (bot	Flight conce Unit (CMU) ution capabili h enroute an	ppts. Key ele , Communic ities include d oceanic).	volving Communication, Navigation and Surveillance (CNS) and Free Flight concepts. Key elements of its al Multi-Mode Receiver (MMR), Dual Communications Management Unit (CMU), Communications Datalinks lude a data link to augment/replace voice communications. The navigation capabilities include a fully integrated veillance capabilities include automatic aircraft position reporting (both enroute and oceanic).
	* NOTE: The FY99 Omnibus approved a \$13.5 million RDT&E requirement, removed \$13.5 million from KC-10 GATM Procurement, and transferred \$9.5 million to RDT&E. Congressional action transferred \$23.609 million in FY00 funds to RDT&E. FY01 funds were transferred from procurement to accurately reflect the nature of the work being accomplished.		s requiremer FY00 funds	nt, removed to RDT&E.	\$13.5 millio FY01 funds	n from KC-s were transf	10 GATM F erred from ₁	Procurement, procurement	, and transfer to accurately	on RDT&E requirement, removed \$13.5 million from KC-10 GATM Procurement, and transferred \$9.5 million million in FY00 funds to RDT&E. FY01 funds were transferred from procurement to accurately reflect the nature
99999	FY 1999 (\$ in Thousands) \$3,780 System Engineering/Program Management \$5,302 Kit Design/Development \$365 Mission Support \$9,447 Total	Managemen	.							
555555	FY 2000 (\$ in Thousands) \$4,287 System Engineering/Program Management \$14,020 Kit Design/Development \$2,833 Prototype Fabrication \$2,191 Mission Support \$23,331 Total	Managemen								
۵.	Project 674496		Page	Page 1 of 5 Pages	S			ш	Exhibit R-2 (Exhibit R-2 (PE 0401219F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ATION SHEET (R-2 Exhibi	£)	DATE Februa l	February 2000
9008 07 -	вирсет Астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 0401219F KC-10S			PROJECT 674496
(a)	A. Mission Description Continued				
33333	\$196 System Engineering/Program Management \$196 Kit Design/Development \$9,057 Kit Design/Development \$8,492 Prototype Fabrication/Install \$1,781 Mission Support Total				
9	B. Budget Activity Justification This effort is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.	n system and, therefore, is assigned to Bu	dget Activity 7, C	perational Systems Deve	elopment.
9	C. Program Change Summary (\$\sin\$ Thousands)	FY 1999	FY 2000	FY 2001	Total Cost
99	Previous President's Budget (FY 2000 PBR) Appropriated Value	0	0	0	0 0
<u> </u>	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram	6,500	-150		-150 -128 9,500
	d. Below Threshold Reprogram e. Rescissions f. Other	-53	23,609		-53
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	9,447	23,331	19,526 19,526	19,526 52,304
<u>5</u>	Significant Program Changes: Funds were programmed under the 3010 appropriation in FY00 PB. Air Force determined that 3600 funds were appropriate for the NRE/Prototype of this modification and supproved a \$13.5 million RDT&E requirement, removed \$13.5 million from KC-10 GATM Procurement, and transferred \$9.5 million to RDT&E. Congressional action transferred \$23.609 million in FY00 funds to RDT&E. FY01 funds were transferred from procurement to accurately reflect the nature of the work being accomplished.	in FY00 PB. Air Force determined that 3600 funds were appropriate for the NRE/Prototype of this modification. requirement, removed \$13.5 million from KC-10 GATM Procurement, and transferred \$9.5 million to RDT&E. 700 funds to RDT&E. FY01 funds were transferred from procurement to accurately reflect the nature of the work	vere appropriate f ATM Procuremen rom procurement	or the NRE/Prototype of it, and transferred \$9.5 mi to accurately reflect the r	this modification. illion to RDT&E. nature of the work
<u>. </u>	Project 674496	Page 2 of 5 Pages		Exhibit R-2 (Exhibit R-2 (PE 0401219F)
		C + / +			

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	M JUSTIFIC	ATION	SHEET (R-2 Exhi	bit)	ďΩ	DATE Februa	February 2000	
BUDX 07	вироет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0401219F KC-10	AND TITLE KC-10S				PROJECT 674496	၂ ဖ
9	D. Other Program Funding Summary (\$ in Thousands) EY 1999 EY 2000 Actual Estimate	housands) EY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost	Cost
99	AF RDT&E Other APPN 595 0 36,367 31,334 19 PE#401219F / KC-10 Squadrons, Aircraft Procurement, AF, BA-5, KC-10 Mods, GATM, BP-11	0 urement, AF, BA-5	36,367 5, KC-10 Mc	31,334 ods, GATM, E	19,667 P-11				87,	87,963
9	 E. Acquisition Strategy The acquisition strategy is to issue a cost plus award fee contract to the Original Equipment Manufacturer (OEM) for this effort. The contract is managed at the OC-ALC. 	ward fee contract to	o the Origina	al Equipment	Manufacturer	(OEM) for thi	s effort. The c	ontract is manag	ged at the	
()	F. Schedule Profile			FY 1999 2 3	4	EY.2	EY 2000 2 3 4	1 2 E	EX 2001	4
<u> </u>	Acquisition Strategy Plan (FY99/1) Contract Award Prototype Installation Starts First Flight Developmental Test Start Production Installation Start (FY03/1) * - On-going activities X - Scheduled activities		*		·	×			×	××
止	Project 674496		Page	Page 3 of 5 Pages				Exhibit R-2	Exhibit R-2 (PE 0401219F)	

	RDT&E PROGRAM ELEMENT	EMENT/PF	ROJECT C	/PROJECT COST BREAKDOWN (R-3)	WN (R-3)		DATE Fel	February 2000	00
BUDY 07	BUDGET ACTIVITY 07 - Operational System Development	ent		PE NUMBER AND TITLE 0401219F KC-10S	6			9	РРОЈЕСТ 674496
(3)	A. Project Cost Breakdown (\$ in Thousands)	(spu			FV 1999	666	FY 2000		FY 2001
Œ	System Engineering/Program Management				3,	3,780	4,287	N .	196
<u>e</u>	Kit Design/Development				΄ ν΄	5,302	14,020		9,057
9	Prototype Fabrication						2,833	_	8 402
<u> </u>	Prototype Fabrication/Install Mission Support				Ö	365	2,191		1,781
<u> </u>	1 0 (4)				•	: :			
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ing Information	(S in Thousand	(মু					
3	Organizations:								
	Contractor or Contract Government Method/Type	Award or	Performing	Project					
			Activity		Budget	Budget	Budget	Budget to	Total
	Activity Vehicle	Date Sen 00 Mar	EAC	EAC to FY 1999 TRD 0	EY 1999 9 247	EY 2000	18,917	Complete 0	Frogram 50.195
	Doding Strain	01			; !				
	Product Development Organizations								
	Support and Management Organizations	200 00			000	300	300		800
	EMC, Frontier, other support C/FF	Sep 99-iviar 01			007	000	8		8
	Contractors AF Mission Support System T&M	01 Mar 00				1,000			1,000
	(AFMSS)								
	Test and Evaluation Organizations								
	418 Test Squadrn AFFTC T&M	Jan 01					309		309
	(Edwards AFB)								
	274406		Dag	Ports A of 5 Portes			Exhibit	Exhibit R-3 (PE 0401219F)	1219F)
	Project 674496		Га	se 4 oi 3 rages					/ 101.7

RDT&E PROGRAM ELEMENT	RAM ELE		/PROJECT	COST BREAKDOWN (R-3)	OWN (R-3)		DATE Fe	February 2000	00
вирсет Астилту 07 - Operational System Development	Developme	nt		PE NUMBER AND TITLE 0401219F KC-10S	E 0S			9	PROJECT 674496
(U) Government Furnished Property: Control Metho Item Description Product Development Property TRD	perty: Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> Date	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u> Total</u> Program
Support and Management Property TBD Test and Evaluation Property TBD	perty								
Subtotals				Total Prior to EY 1999	Budget FY 1999 9,247	Budget FY 2000 22,031	Budget FY 2001 18,917	Budget to Complete 0	Total Program 50,195
Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	t nent			0	200	1,300	300 309 19,526	0	1,800 309 52,304
Project 674496				Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0401219F)	01219F)

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	RDT8	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 E)	chibit)		DATE	Februa	February 2000
8UDK 07 -	вирдет АстіVітY 07 - Operational Sy y	BUDGET ACTIVITY O7 - Operational System Development			PE NUMBER 040401 1	PE NUMBER AND TITLE 0404011F Speci	PE NUMBER AND TITLE 0404011F Special Operations Forces	tions Fo	rces		PROJECT 674860
	COST (\$	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674860	30 Special Operations Forces	Forces	0	0	1,109	300	0	0	0	0	1,409
	Quantity of RDT&E Articles	: Articles	0	0	2	0	0	0	0	0	0
3	A. Mission Description The aircrews require an Even without firing, thre from a modernized RWI maneuvering. Threat loc to allow the aircrews to will be designed/develop 100, improved angle acc become increasingly diff	A. Mission Description The aircrews require an enhanced capability to precisely locate and identify the modern day threats in order to meet mission requirements in a dense threat environment. Even without firing, threat systems can disrupt or negate operational missions by requiring aircrew reactions that affect mission objectives. Improved threat information from a modernized RWR will assist the aircrews in determining precise threat ranges/directions and provide option responses short of mission abort or violent aircraft maneuvering. Threat location refinements will help an enroute aircrew respond 'real-time' to previously unknown threats by providing sufficiently accurate information to allow the aircrews to reroute around hostile areas. This upgrade has been targeted for the AN/ALR-69 RWR system installed on all SOF aircraft. This upgrade effort will be designed/developed to provide improved situational awareness capability, improved reliability/maintainability, improved emitter ranging capability by factor of 100, improved angle accuracy, and increased ambiguity resolution by an order of magnitude. The present AN/ALR-69 RWR system is 1970's technology and has become increasingly difficult to maintain with the sustainment and capability issues.	ely locate ar attach locate ar attach locate ar etermining p. n enroute air This upgrade trional aware ity resolution stainment an	id identify that mal missions recise threa crew respons has been to mess capability an orded capability	he modern da s by requirin, tr ranges/dire nd 'real-time' argeted for th ility, improve er of magnitu	ay threats in g aircrew resctions and p to previouslie AN/ALR-ed reliability, de. The pres	order to mes actions that a rovide option by unknown i '69 RWR sys'/maintainabi	et mission re affect mission n responses threats by pi stem install ility, improv R-69 RWR 8	equirements nn objectives short of mis roviding suf ed on all SO ed emitter r.	in a dense th s. Improved to sion abort or ficiently accu F aircraft. The anging capal	reat environment. threat information violent aircraft urate information his upgrade effort nility by factor of
999	EY 1999 (\$ in Thousands) \$0 No \$0 Tot	<u>ands)</u> No Activity Total									
<u> </u>	FY 2000 (\$ in Thousands) \$0 No \$0 Tot	<u>ands)</u> No Activity Total									
55555	FY 2001 (\$ in Thousands) \$700 Har \$300 Sys \$109 Pro \$1,109 Tot	ands) Hardware/Software Design/Development Systems Engineering Support Program Office Support Total	velopment								
<u>a</u>	Project 674860			Page	Page 1 of 5 Pages	s			ш	Exhibit R-2 (Exhibit R-2 (PE 0404011F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	IFICATION	SHEET	(R-2 Exhi	bit)		DATE February 2000	, 2000
97. 07.	вирсет аститу 07 - Operational System Development		PE NUMBER AND TITLE 0404011F Speci	AND TITLE Special	וס ππ∟Ε Special Operations Forces	s Forces		PROJECT 674860
<u> </u>	B. Budget Activity Justification This program is a budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system. This is an FY01 new start.	evelopment beca	use it provides	funding for th	e modernizatic	on of a curren	tly existing and oper	rating system.
9	C. Program Change Summary (\$\sin\$ Thousands)			FV 1000	EV 2000		FV 2001	Total
99	Previous President's Budget (FY 2000 PBR) Appropriated Value			0			1,110	1,110
9	Adjustments to Appropriated Value a. Congressional/General Reductions			0				
	b. Small Business Innovative Researchc. Omnibus or Other Above Threshold Reprogram			0 0				
	d. Below Threshold Reprogram e. Rescissions			00				
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR			0 0	- 0	0 0	-1 1,109	1-1,109
9	Significant Program Changes: No changes, first submittal. This is an FY01 new start.							
<u> </u>	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	FY 2001 Estimate	FY 2002 Estimate	<u>FY 2003</u> Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
999			1,516	11,849	10,921	11,002	Continuing	TBD
9	E. Acquisition Strategy An acquisition to design/develop, test, and integrate hardware/software that will provide earth coordinate location and detailed identification of lethal threat radars using the present AN/ALR-69 RWR as the baseline. Acquisition will be accomplished through full and open competitive procedures using source selection processes for award of contract award is projected for Nov 00.	re/software that v will be accomplis	vill provide ea hed through fu	th coordinate and open coi	location and d mpetitive proc	etailed identif edures using s	ication of lethal thre source selection pro	eat radars using cesses for
ιτ	Project 674860	Pag	Page 2 of 5 Pages				Exhibit R-2 (PE 0404011F)	E 0404011F)

RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
BUDGET ACTIVITY O7 - Operational System Development	PE NUMBER AND TITLE 0404011F Special Operations Forces	PROJECT 674860
(U) E. Schedule Profile	Y 1999 FY 2000	FY 2001
(U) Software Development complete (U) Hardware Development complete (U) Testing Begins	4 L	1
Project 674860	Page 3 of 5 Pages	Exhibit R-2 (PE 0404011F)

	RDT&E PROGRAM ELEMENT		/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
2 7	вирсет астилту 07 - Operational System Development	opment		PE NUMBER AN 0404011F	PE NUMBER AND TITLE 0404011F Specia	l Operatio	ыр тп∟е Special Operations Forces	(0	9	PROJECT 674860
9	A. Project Cost Breakdown (\$ in Thousands)	<u>housands)</u>				FV 1909	000	FV 2000		EV 2001
9999	Software/Hardware Design/Development Program Office Support System Engineering Support Total	ment					22.22		21	700 700 109 300 1,109
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	Planning Informat	ion (\$ in Thousanc	<u>ls)</u>						
9	Performing Organizations: Contractor or Government Performing Activity Product Development Organiz	Contract Method/Type Award or or Eunding Obligation Vehicle Date ations	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to. Complete	<u>Total</u> Program
	WR-ALC/LNRC TBD	TBD Nov 00	TBD TBD	TBD	00	00	00	700 300	300	1,000
	Support and Management Organizations TBD Various Test and Evaluation Organizations	ons Is Jun 01	N/A	N/A	0 0	0 0	0 0	109	0 0	109
5	Government Furnished Prop Government Furnished Prop Item Description Product Development Property NONE Support and Management Prop NONE	lerty: Contract Method/Type Award or or Funding Obligation Vehicle Date /	Delivery Date		Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to. Complete	Total Program
Щ	Project 674860		Pag	Page 4 of 5 Pages	se.			Exhibi	Exhibit R-3 (PE 0404011F)	04011F)

	RDT&E PROGRAM ELEMENT/PROJECT (/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
9008 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0404011F Special	Operatio	₩ тіт∟Е Special Operations Forces		9 6	PROJECT 674860
(ည)	Government Furnished Property Continued: Test and Evaluation Property NONE						
	Subtotals Subtotal Product Development	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	Subtotal Support and Management Subtotal Test and Evaluation	000	000	000	109	800	109
	Total Project	0	0	0	1,109	300	1,409
۵	Project 674860 Pa	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0404011F)	4011F)

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	RDT&	RDT&E BUDGET ITEM JU	JSTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	February 2000	y 2000
BUDG 07	BUDGET ACTIVITY 07 - Operational Svs	BUDGET ACTIVITY O7 - Operational System Development			PE NUMBER AND TITLE 0702207F Depo	RAND TITLE F Depot	Mainten	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	on-IF)		PROJECT 673326
	COST (\$ in	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673326	26 Precision Measurement & Calibration	nent & Calibration	1,438	4,744	1,515	1,533	1,558	1,587	1,613	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
6	A. Mission Description This program develops, and activities, including support systems in all phe support. Rapidly changing systems meet Air Force millimeter wave, optical measurements and to the hardware conformance to measure and calibrate impedes or blocks the suare essential within the I test results in all phases	A. Mission Description This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including 113 Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The integrity of these tests is assured through calibration and traceability assurance of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment, grounding the population. R&D efforts are essential within the DoD to pace these requirements and operation.	and Air Forc Equipment I. quisition, as v nuing researc ogram addres rical, electror neasurement tests. The inf of new tech technologies nts, otherwish deployment	e measurem aboratories vell as Air F h and devel sses all metr iic, and ioni technology tegrity of th nology, new ology, new e, especially e, these sam and operatic	ent standard (PMELs) w (PMELs) w 'orce R&D I opment of m cology discip zing radiatio . Measurem ese tests is a ranges, and in the move in the move he new system on.	s (hardware) orldwide. Maboratories, leasurement lines and inc m measurem ents are the ssured throu, new capabil ment from d ms will suffe	and calibra fetrology restranges, standards an cludes the te ents. Metrol foundation of gh calibratio lities of mili- evelopment r time delay	tion equipm search and d ground test nd calibratio chnology ar logy is a tec. of military s on and trace tary systems laboratory 1	lent in suppo levelopment facilities, an on equipment eas of laser, hnical discip ystem devels ability assurs s. Lack of no to production cost, and in	rt of all Air F provides tecl d operational to ensure m infrared, mic line devoted opment, qual unce schemes ew measuren to deploym creased risk.	Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to usition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems using research and development of measurement standards and calibration equipment to ensure modern weapon ogram addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, ical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of neasurement technology. Measurements are the foundation of military system development, quality assurance, ests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability technologies, especially in the movement from development laboratory to production to deployment. R&D efforts nts, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable deployment and operation.
99	FY 1999 (\$ in Thousands) \$680 Cor war	onds) Completed the development of an enhanced electrical substitution radiometer, tunable lasers for radiometry and detector standards for long wavelength infrared measurements; began the tunable diode fiber laser for optic metrology and radiance response with uniform sources projects; and continued development of other national measurements standards to support Air Force infrared / laser/electro-optical weapon system and	f an enhance nents; began f other nation	d electrical the tunable al measurer	substitution diode fiber l nents standa	radiometer, 1 aser for opti rds to suppo	tunable laser c metrology rt Air Force	rs for radion and radianc infrared / la	netry and del e response v ser/electro-o	an enhanced electrical substitution radiometer, tunable lasers for radiometry and detector standards for long ents; began the tunable diode fiber laser for optic metrology and radiance response with uniform sources pro other national measurements standards to support Air Force infrared / laser/electro-optical weapon system a	an enhanced electrical substitution radiometer, tunable lasers for radiometry and detector standards for long ents; began the tunable diode fiber laser for optic metrology and radiance response with uniform sources projects; other national measurements standards to support Air Force infrared / laser/electro-optical weapon system and
9	\$175	support equipment. Completed noise figure measurement project and continued development of standards for radar support, RF communications systems, and radar	rement proje	ct and cont	inued develo	pment of sta	ındards for r	adar suppor	t, RF comm	unications sy	stems, and radar
9	\$195	cross-section range measurements. Completed development of methods to characterize micro-electromechanical sensors (MEMS), began development of methods to characterize bench too wind tunnels, and continued development of improved calibration support for coordinate measuring machines (CMMs).	ethods to cha ontinued dev	racterize m	icro-electron f improved c	nechanical so alibration su	ensors (MEI	MS), began ordinate me	development asuring mac	t of methods hines (CMM	to characterize s).
<u>(C</u>	(U) \$313	Completed the fast electrical pulse project, began development of improved thin film multi junction thermal converters and continued development of standards for electrical measurements to support high accuracy electronic test equipment.	oulse project, electrical me	began deve asurements	lopment of i	mproved thi igh accuracy	n film multi electronic t	junction the	ermal conve	rters and con	tinued
<u>a</u> .	Project 673326			Page	Page 1 of 5 Pages	Ş				Exhibit R-2	Exhibit R-2 (PE 0702207F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
8006 07 -	вирсет астічіту 07 - Operational Sy s	обет АСТІVITY - Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	PROJECT 673326
(n)	A. Mission Description Continued	on Continued		
99	EY 1999 (\$ in Thousands) Continued \$75	Completed the beta measurement traceability project,	Completed the beta measurement traceability project, continued the large area alpha radiation source metrology project and the development of	sy project and the development of
<u>5</u>	\$1,438	national standards for calibration of fonizing radiation nazard instrumentation. Total	n nazard instrumentanon.	
99	FY 2000 (\$ in Thousands) \$1,735 Cor	nds) Complete the development of an improved blackbody	<u>ids)</u> Complete the development of an improved blackbody calibrator and the tunable diode lasers for fiber optic metrology projects; begin projects to	etrology projects; begin projects to
(£)	\$1,024	develop a target simulator radiometer, an improved ay development of national measurement standards to su Complete the development of the microwave high po	develop a target simulator radiometer, an improved avalanche photo diode and a domain engineered pyroelectric detector; and continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment. Complete the development of the microwave high power system; begin projects to develop a full scale co-conical field generation system and a	rric detector; and continue systems and support equipment. ical field generation system and a
<u>(</u>	\$760	direct comparison power calibration system for 2.4mm, 2.92mm and 3.3mm connec support, RF communications systems, and radar cross-section range measurements. Complete methods to characterize bench top wind tunnels, and continue the develop	direct comparison power calibration system for 2.4mm, 2.92mm and 3.5mm connectors; and continue development of standards for radar support, RF communications systems, and radar cross-section range measurements. Complete methods to characterize bench top wind tunnels, and continue the development of improved calibration support for coordinate	oment of standards for radar tion support for coordinate
9	\$455	measuring macrimes (CMMS) and standards to support Complete the next generation sampling comparator program precision wide band measurement systems; and comparement systems; and comparement systems.	measuring machines (CMMs) and standards to support physical, mechanical and electro-mechanical support equipment. Complete the next generation sampling comparator probe project; begin to develop methods to characterize enhanced wide band oscilloscopes and precision wide band measurement systems; and continue development of standards for electrical measurements to support high accuracy	equipment. Thanced wide band oscilloscopes ments to sunnort high accuracy
<u>5</u>	\$135	electronic test equipment. Complete the large area alpha radiation source metrology project, begin the low level dosiment	electronic test equipment. Complete the large area alpha radiation source metrology project, begin the low level dosimetry traceability project and continue the	roject and continue the
99	\$635 \$4,744	Begin to develop methods to automate metrology processes. Total	Cosses.	
99	FY 2001 (\$ in Thousands) \$680	ntinue develonment of nation	al measurement standards to support Air Force infrared / Jaser / electro-ontical weapon systems and support	weapon systems and support
9	\$260	equipment. Begin to develop WG 50-110 wave guide standards a	equipment. Begin to develop WG 50-110 wave guide standards and continue development of standards for radar support, RF communications systems, and	RF communications systems, and
5)	\$130	radar cross-section range measurements. Complete development of improved calibration support	radar cross-section range measurements. Complete development of improved calibration support for coordinate measuring machines (CMMs), and continue development of standards to	tinue development of standards to
(£)	(U) \$350	support pnysical, mechanical and electro-mechanical support equipment. Complete the Hall effect resistance standard project, the frequency respo	support pnysical, mechanical and electro-mechanical support equipment. Complete the Hall effect resistance standard project, the frequency response characteristics of capacitors projects and the improved thin film	cts and the improved thin film
Ą	Project 673326	Pag	Page 2 of 5 Pages	Exhibit R-2 (PE 0702207F)

	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)		DATE February 2000	2000
8UDC 07 -	вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0702207F Depot Maintenance (Non-IF)	tenance (Non-	.IF)	PROJECT 673326
<u>(</u>	A. Mission Description Continued				
9	FY 2001 (\$ in Thousands) Continued multi junction thermoconverter project; and continue d	project; and continue development of standards for electrical measurements to support high accuracy electronic	trical measurements	s to support high accurac	y electronic
5	test equipment. \$95 Complete the large area beta source project and continue the development of national standards for calibration of ionizing radiation hazard	nue the development of national s	tandards for calibrat	ion of ionizing radiation	hazard
9	\$1,515 Total				
9	B. Budget Activity Justification This program is in budget activity 7 - Operational System Development because it supports operational systems.	use it supports operational systen	ns.		
3	C. Program Change Summary (\$ in Thousands)				
9	Previous President's Budget (FY 2000 PBR)	EY 1999 1,496	EX 2000 1,500	EY 2001 1,529	Total Cost TBD
9	Appropriated Value	1,500	4,800		
9	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	4 (
	b. Small Business Innovative Research	0¢-	70		
	d. Below Threshold Reprogram		27		
	e. Rescissions	8-	-30		
	f. Other				TBD
99	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	1,438	4,744	-14 1,515	TBD
9	Significant Program Changes: The additional funding in FY 00 is to expedite the completion of several metrology projects such as to: develop the microwave high power system; develop a full scale	rology projects such as to: develo	p the microwave hig	zh power system; develop	p a full scale
	co-conical field generation capability; improve blackbody calibration; develop target simulator radiometer; develop direct comparison power calibration system; and develop methods to characterize bench top wind tunnels. It will also be used to address requirements in areas such as automated metrology that could not be funded at	op target simulator radiometer; de I to address requirements in areas	velop direct compar such as automated i	rison power calibration sy metrology that could not	ystem; and be funded at
	previous levels.				
Ф	Project 673326	Page 3 of 5 Pages		Exhibit R-2 (PE 0702207F)	0702207F)
		1631			

	RDT&F PROGRAM FI EMENT	PAM FI E	MENT/PE	'PBO IECT COST BREAKDOWN (B.3)	OST BE	PEAKDOV	WN (P-3)		DATE	000000000000000000000000000000000000000	
	ומומבווומסו			10050		LANGO.				repruary 2000	8
900 01	BUDGET ACTIVITY 07 - Operational System Development	evelopme	nt		PE NUMBER AN 0702207F	PE NUMBER AND TITLE 0702207F Depot	ND TITLE Depot Maintenance (Non-IF)	l-uoN) סר	F)	9	РРОЈЕСТ 673326
9	A. Project Cost Breakdown (\$ in Thousands)	S in Thousand	<u>(SI</u>				0001 753	000) OC 751	9	100C VII
93	Quality Assurance (Develop Measurement Standards & Calibration Support) Travel	Measurement S	tandards & Ca	libration Support	(c		1,1	1,410 28	4,715 29	a	1,485
3							1,	1,438	4,744	4	1,515
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	y and Plannin	g Information	(S in Thousand	ন্ত্র						
3	Performing Organizations:										
	Contractor or	Contract									
	Government Nerforming	Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Rudoet	Budget	Budget	Budget to	Total
			Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	EY 2001	Complete	Program
	Product Development Organizations	ations								ı	
		MIPR (DD	Varies	TBD	TBD	13,629	1,351	3,820	1,485	Continuing	TBD
	Standards & Technology Formartment of Energy	FORM 448) MIPR (DD	Varies	TRD	TRD		40	090		Continuina	TRD
		FORM 448)			1		S .	}			
	Technical Support Contracts \	Various	Varies	TBD	TBD			635		Continuing	TBD
	AFMC	In House	Varies	TBD	TBD	145	28	29	30	Continuing	TBD
	Support and Management Organizations Test and Evoluation Organizations	anizations									•
	Test and Evaluation Organizations	शाठा				Total Prior	Rudget	Rudget	Rudget	Rudget to	Total
	Subtotals					to FY 1999	EY 1999	EY 2000	FY 2001	Complete	Program
	Subtotal Product Development					13,774	1,438	4,744	1,515	TBD	TBD
	Subtotal Support and Management	nent									
	Subtotal Test and Evaluation										
	Total Project					13,774	1,438	4,744	1,515	TBD	TBD
				,	1				: :		i
	Project 673326			Pag	Page 5 of 5 Pages	es			Exhib	Exhibit R-3 (PE 0702207F)	02207F)

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	RDT8	RDT&E BUDGET ITEM JU	USTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
800C	вирбет АстіvітУ 07 - Operational Sy я	BUDGET ACTIVITY OF - Operational System Development			PE NUMBEF 0708011	PE NUMBER AND TITLE 0708011F Indus	PE NUMBER AND TITLE 0708011F Industrial Preparedness	arednes	S		PROJECT 672865
	COST (\$ i	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672865	55 Manufacturing Technology	ypolour	50,597	51,988	53,082	53,600	54,193	55,369	56,279	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
(2)	A. Mission Description The Manufacturing Tech technologies, manufactu	A. Mission Description The Manufacturing Technology (ManTech) program is a corporate Air Force program that establishes and demonstrates advancements in manufacturing process technologies, manufacturing engineering systems, and industrial practices, and transitions these advancements into weapon systems design, development, acquisition, and practices and practices and new manufacturing canabilities annicable to existing as well as new weapon systems.	is a corporat d industrial p	e Air Force practices, an	program tha d transitions s and new m	t establishes these advan	and demons cements into	strates advar s weapon sy	ncements in stems design	is a corporate Air Force program that establishes and demonstrates advancements in manufacturing process industrial practices, and transitions these advancements into weapon systems design, development, acquision processes and manifacturing canabilities amplicable to existing as well as new weapon s	ng process ent, acquisition,
	under development. multi-use industrial b of development, throu	under development. ManTech strives to make superior mission enabling technologies an affordable life cycle reality by expanding access to a capable, responsible, multi-use industrial base with efficiencies comparable to world class enterprises. Program efforts accelerate shop floor manufacturing process maturation, at every stage of development, through increased emphasis on cost, time, and quality risks in transition. Best processes are evaluated and adapted for application. Where mature	or mission er e to world cl time, and qu	nabling tech ass enterpris	nologies an ses. Program n transition.	affordable li efforts acce Best proces	fe cycle real	ity by expar floor manuf ated and ad	nding access acturing pro	or mission enabling technologies an affordable life cycle reality by expanding access to a capable, responsible to world class enterprises. Program efforts accelerate shop floor manufacturing process maturation, at every time, and quality risks in transition. Best processes are evaluated and adapted for application. Where mature	, responsible, ion, at every stage
	processes are not ava floor manufacturing/i integrated product pro and the performance defense applications.	processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech goes beyond just factory floor manufacturing/repair processes and encompasses every activity within an industrial enterprise, ranging from above the shop floor activities, including tools for integrated product process development (IPPD), to supplier base interactions and performance. The strategies and best practices of world-class enterprises are analyzed and the performance of defense suppliers benchmarked. The world's best industrial practices are adapted and validated in multiple pilot projects and deployed in defense applications. Project efforts address and target all industry levels, from large prime contractors to small material and parts vendors. Program efforts also enhance repair/remanufacture capabilities to affordably sustain the aging weapon systems inventory, thereby reducing total ownership costs.	tial process c es every activation base i ed. The wor get all industrially sustain the	apabilities a vity within a nteractions: ald's best indi y levels, fro e aging weal	re matured a n industrial and perform ustrial practi m large prim	and inserted enterprise, rrance. The st ces are adapt the contractor inventory, t	into weapon anging from rategies and ted and vali s to small m hereby redu	system prog above the sl l best practic dated in mul naterial and p	grams. Man hop floor act ses of world- itiple pilot pr parts vendor wnership cos	Tech goes be tivities, inclucional senterpor cojects and des. Program (s.	eyond just factory iding tools for rises are analyzed eployed in efforts also
99	EX 1999 (\$ in Thousands) \$28,525 Est	ands) Established and demonstrated cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion,	cost-effectiv	e and efficie	ent manufact	uring techno	ologies for ca	ritical, high	quality, relia	ible structura	ıl, propulsion,
(£)	\$16,107	and electronic components and assemblies required for existing and next generation aircraft. Conducted pilot efforts in high-payoff endeavors aimed at validating potential benefits from flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Conducted long-term projects focused on IPPD tools. Established and demonstrated cost-effective repair and manufacturing technologies to affordably sustain existing weapon systems and to enhance mission readiness. Reduced repair and maintenance cycle time for aging systems and established remanufacturing capabilities able to rapidly	1 assemblies enefits from 1g-term proje cost-effectiv epair and ma	required for flexible mar cts focused e repair and intenance cy	existing and nufacturing, on IPPD toc manufacturi	I next gener: commercial. ils. ing technolo aging syster	ation aircrafi military int gies to affor ns and estab	t. Conducte egration, quz dably sustaii lished remai	d pilot effor ality process n existing w nufacturing (ts in high-pa; ing, and supj eapon systen capabilities a	assemblies required for existing and next generation aircraft. Conducted pilot efforts in high-payoff endeavors nefits from flexible manufacturing, commercial/military integration, quality processing, and supplier 5-term projects focused on IPPD tools. cost-effective repair and manufacturing technologies to affordably sustain existing weapon systems and to enhance oair and maintenance cycle time for aging systems and established remanufacturing capabilities able to rapidly
9	(U) \$1,445	generate standardized replacement parts on demand. Established and demonstrated efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Established manufacturing improvements required to transition precision-guided munitions subsystems into production. Conducted pilot efforts in high-payoff endeavors aimed at validating potential benefits	nent parts on efficient and Ision method bsystems int	demand. cost-effecti s for advanc o productior	ve manufact ed tactical n 1. Conducte	uring metho nissiles. Est	ds for high pablished ma	performance nufacturing 1yoff endeav	high reliab improvemer	ility electron its required t	manufacturing methods for high performance, high reliability electronics, lightweight tactical missiles. Established manufacturing improvements required to transition Conducted pilot efforts in high-payoff endeavors aimed at validating potential benefits
هَ	Project 672865			Page	-					Exhibit R-2 (Exhibit R-2 (PE 0708011F)

	RDT8	RDT&E BUDGET ITEM JUSTIFICATION (STIFICATION SHEET (R-2 Exhibit)	DATE February 2000
9008 - 20	BUDGET ACTIVITY 07 - Operational Sys	овет аститу - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT 672865
(Đ	A. Mission Description Continued	ion Continued		
5	FY 1999 (\$ in Thousands) Continued	ands) Continued		
<u>(</u> 5)	\$4,520	accrued from inserting best practices in production of weapon systems. Established and demonstrated affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Established effective and efficient manufacturing technology for critical high quality, reliable electronic components and assemblies required for surveillance, tracking communications links, and data/signal processing. Conducted pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command,	trices in production of weapon systems. frordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecr fective and efficient manufacturing technology for critical high quality, reliable electronic components and ance, tracking communications links, and data/signal processing. Conducted pilot efforts in high-payoff fricient, low-cost capability to produce components and weapon systems in the space, launch, and Comman	higher performance spacecraft and electronic components and idot efforts in high-payoff space, launch, and Command,
5	\$50,597	Control, Communications, and Intelligence (C3I) industrial base sectors. Total	rial base sectors.	
5	FY 2000 (\$ in Thousands)	ands)		
(2)	\$20,225	Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Conduct long-term projects focused on integrated product process development (IPPD) tools. Efforts include Phase II of the Forging Supplier Initiative and continuance of the Composites Affordability Initiative, aimed at providing 50% cost reduction in fighter aircraft structures.	nanufacturing technologies for critical, high quality, reting and next generation aircraft. Conduct pilot efforts ufacturing, commercial/military integration, quality prointegrated product process development (IPPD) tools. posites Affordability Initiative, aimed at providing 50%	iable structural, propulsion, and in high-payoff endeavors aimed at ocessing, and supplier Efforts include Phase II of the cost reduction in fighter aircraft
<u>5</u>	\$22,799	Establish and demonstrate cost-effective repair and manufacturing technologies for affordable sustainment of existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities which will rapidly generate standardized replacement parts on demand. Establish process improvements for repair/remanufacture of large area structures on legacy aircraft.	ufacturing technologies for affordable sustainment of ance cycle time for aging systems and establish remaniand. Establish process improvements for repair/remar	existing weapon systems and to ufacturing capabilities which will unfacture of large area structures on
<u>(</u>	\$1,515	lemonstrate effici efficient propulsi ed munition subsy nserting best prac	ent and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight ion methods for advanced tactical missiles. Establish manufacturing improvements required to transition stems into production. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits tices in the production of weapon systems.	ability electronics, lightweight nents required to transition at validating potential benefits
5	\$6,949	Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic component and assemblies required for surveillance, tracking communications links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command, Control, Communications, and Intelligence (C31) industrial base sectors. Initiate effort to rapidly respond to space sector manufacturing issues.	uring processes to reduce the cost and lead time of hig facturing technology for critical high quality, reliable e cations links, and data/signal processing. Conduct pill luce components and weapon systems in the space, lau sectors. Initiate effort to rapidly respond to space sec	ther performance spacecraft and electronic component and ot efforts in high-payoff endeavors nch, and Command, Control, tor manufacturing issues.
<u> </u>	(U) \$500	Start and complete nickel metal-hydride replacement battery effort.	ittery effort.	,
P	Project 672865	Page 2	Page 2 of 6 Pages	Exhibit R-2 (PE 0708011F)
		-		

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2000
900 - 20	вирбет Астіvіту 07 - Operational Sys	BUDGET ACTIVITY 07 - Operational System Development 0708011F Industrial Preparedness	PROJECT dness 672865
(D)	A. Mission Description Continued	on Continued	
99	FY 2000 (\$ in Thousands) Continued \$51,988	nds) Continued Total	
99	FY 2001 (\$ in Thousands) \$19,402 Est elec vali	Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Conduct long-term projects focused on integrated product process development (IPPD) tools. Initiate effort to catalog and	th quality, reliable structural, propulsion, and t pilot efforts in high-payoff endeavors aimed at n, quality processing, and supplier IPPD) tools. Initiate effort to catalog and
(5)	\$21,855	implement lean concepts. Start activity focused on modeling and simulation techniques for manufacturing enterprises. Establish and demonstrate cost-effective repair and manufacturing technologies for affordable sustainment of existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities which will	facturing enterprises. stainment of existing weapon systems and to ablish remanufacturing capabilities which will
(£)	\$1,315	rapidly generate standardized replacement parts on demand. Initiate effort to address technologies for turbine engine life extension. Establish and demonstrate efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Establish manufacturing improvements required to transition precision onided munition subsystems into production. Conduct nilot efforts in high-navore simed at validating notential benefits	is for turbine engine life extension. toe, high reliability electronics, lightweight ing improvements required to transition avore aimed at validating notantial henefite
(0)	\$10,510	accrued from inserting best practices in the production of weapon systems. Initiate project to establish affordable manufacturing processes for microelectronic machined structures (MEMS) applied to inertial measurement units. Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic component and assemblies required for surveillance, tracking communications links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command, Control,	define of higher performance spacecraft and time of higher performance spacecraft and ity, reliable electronic component and Conduct pilot efforts in high-payoff endeavors he space, launch, and Command, Control,
5	\$53,082	Communications, and Intelligence (C3I) industrial base sectors. Continue efforts to rapidly respond to space sector manufacturing issues. Total	nd to space sector manufacturing issues.
9	B. Budget Activity Justification This program is in Budget Activit	B. Budget Activity Justification This program is in Budget Activity 7, Operational System Development, because it provides support to systems in production and/or operational use.	action and/or operational use.
<u></u>	Project 672865	Page 3 of 6 Pages	Exhibit R-2 (PE 0708011E)
	2007 10 1000	1450 010 1450	

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	CATION	SHEET (R-2 Exhi	bit)		DATE Febru	February 2000	
BUD(07 -	вирсет астіvіту 07 - Operational System Development		PE NUMBER AND TITLE 0708011F Indus	AND TITLE Industri	PE NUMBER AND TITLE 0708011F Industrial Preparedness	dness		PRO 672	PROJECT 672865
(2)	C. Program Change Summary (\$ in Thousands)			FV 1999	FY 2000	·	FY 2001	Ţ	Total Cost
9	Previous President's Budget (FY 2000 PBR)			52,351	51,814	-1	53,480	4	
<u> </u>	Appropriated Value			52,997	52,314	-			
9	Adjustments to Appropriated Value								
	a. Congressional/General Reductions			-646	40	0			
	b. Small Business Innovative Research			-1,396					
	c. Omnibus or Other Above Threshold Reprogram				-286	٠,0			
	d. Below Threshold Reprogram			-70					
	e. Rescissions			-288					Ç
Ű	t. Other A dinstments to Budget Vears Since FV 2000 PBR						-308		UBI
3	Adjustments to Dudget Teats Smeet 1 2000 LDA. Current Budget Submit/FY 2001 PBR			50,597	51,988		53,082		TBD
9	<u>Significant Program Changes:</u> Not Applicable.								
9	Tho	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to		Total Cost
	Actual Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	400	
99	AF RDT&E Other APPN Not Applicable.								
9	E. Acquisition Strategy All major contracts in this Program Element were awarded after full and open competition.	full and open	ı competition.						
<u>e</u>	F. Schedule Profile		FY 1999		FY 2000	000		FY 2001	
		-	2 3	4	7 2	3 4		2 3	4
<u> </u>	Not Applicable.								
٥	Project 672865	Page	Page 4 of 6 Pages				Exhibit R-	Exhibit R-2 (PE 0708011F)	011F)

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	I/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
80D 02	BUDGET ACTIVITY 07 - Operational System Development)evelopme	ηt		PE NUMBI 070801	PE NUMBER AND TITLE 0708011F Industrial Preparedness	rial Prepa	redness		9	PROJECT 672865
<u>e</u>	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousanc	(ব				,				
Œ	Manufacturing technologies for aircraft components	or aircraft comn	onente				FY 1999	2 <u>Y 1999</u> 28 525	EY 2000	21 v	EY 2001
3	Repair/remanufacture technologies for weapon system	ogies for weapo		sustainment			16,	16,107	22,799	. 6	21,855
3	Manufacturing methods for missile and munition assemblies	issile and muni	tion assemblies				` 	1,445	1,515	5	1,315
999	Manufacturing processes to reduce spacecraft and launch vehicle costs Nickel Metal-Hydride Replacement Battery effort	duce spacecrafi ement Battery e	t and launch ver	hicle costs			4, 6	4,520 0 50,507	6,949	600	10,510
3 (3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	y and Plannin	g Information	(\$ in Thousand	ଜା		Ś		71,70	o	790,00
9	Performing Organizations:										
,		Contract									
	₩,	a	Award or	<u>Performing</u>	Project						
	gui	ing.	Obligation	Activity	Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity Vehicle Product Development Organizations	Vehicle ations	Date	EAC	EAC	to FY 1999	EY 1999	FY 2000	FY 2001	Complete	Program
	Numerous	Various	Various	N/A	N/A		28.280	26.353	23.837	Continuing	TBD
		Cost Share	Jul 95	N/A	N/A	11,250	4,000	3,000	3,500	500	22,250
	Ontek	CPFF	Jan 95	N/A	N/A	5,448	1,452	0	0	0	6,900
	iţ	CA	Aug 97	N/A	N/A	13,055	5,890	4,070	3,300	0	26,315
	Initiative (Consortium)										
	Sustainment Initiative	Various	Various	N/A	N/A	0	2,430	5,120	6,820	13,939	28,309
	Engine Forging Initiative	Various	May 99	N/A	N/A	0	1,200	2,300	3,000	2,500	9,000
	ıtive	Various	Various	N/A	N/A	0	3,120	4,995	5,375	6,107	19,597
	Small/Medium Supplier	Various	Various	N/A	N/A	0	300	1,800	2,000	5,527	9,627
	Initiative										
	ManTech for Affordable Spacecraft	Various	Various	N/A	N/A	0	1,875	2,350	3,650	4,265	12,140
	k Peening, Inc	CS	Aug 98	N/A	N/A	350	1,350	1,750	1,600	0	5,050
	Coherent Technology, Inc	CS	Jun 97	N/A	N/A	1,400	700	250	0	0	2,350
O	Droject 670865			Dog	Dama 5 of 6 Dama	Ç			ָ בָּי	(3/4E)	000445
	Igen of 2000			1 ag	C J OI O F ag	ß			CXIIID	1 N-3 (TE 07	000 117)

RDT&E PROGRAM ELEMENT	EMENT/PROJECT COST BREAKDOWN (R-3)	-3)	DATE Fe	February 2000	·
вирсет астіліту 07 - Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	paredness		PR 67	PROJECT 672865
(U) Performing Organizations Continued: Support and Management Organizations In house support Test and Evaluation Organizations					
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evoluntion	Total Prior Budget to FY 1999 FY 1999 31,503 50,597	et <u>Budget</u> 29 <u>FY 2000</u> 7 51,988	Budget FY 2001 53,082	Budget to Complete TBD	Total Program TBD
Total Project	31,503 50,597	7 51,988	53,082	TBD	TBD
Project 672865	Page 6 of 6 Pages		Exhibi	Exhibit R-3 (PE 0708011F)	8011F)

	RDT	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	thibit)		DATE	Februa	February 2000
900 07 -	вирсет астилту 07 - Operational S	вирвет Астіліту 07 - Operational System Development			PE NUMBER AND TITLE 0708026F Produ Maintainability F	PE NUMBER AND TITLE 0708026F Productivity, Maintainability Program	ıctivity, F rogram	(eliabilit	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	oility,	РВОЈЕСТ 672146
	COST (COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
672146	t6 PRAM		10,040	22,075	15,227	20,741	24,137	27,536	30,929	Continuing	TBD
	Quantity of RDT&E Articles	ßE Articles	0	0	0	0	0	0	0	0	0
(A. Mission Description Productivity/Reliability/ mature, and/or commerc to emphasize the rapid in cost. Average project let ownership cost of fielde technology when the init blade repair facility effo	A. Mission Description Productivity/Reliability/Availability/Maintainability (PRAM) addresses acute reliability and maintainability (R&M) deficiencies by funding prototypes of developing, mature, and/or commercial-off-the-shelf technologies that can be incorporated into existing Air Force weapon systems and subsystems. The objective of this program is to emphasize the rapid incorporation of R&M technology 'fixes' that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Average project length is twenty-seven months. This program has a proven return on investment averaging greater than 13:1 and is a key tool for reducing the tota ownership cost of fielded systems and supporting infrastructure. PRAM, a level-of-funding program, depends on MAJCOM and field support to implement the technology when the initial investment is completed. Note: Congress added \$13 million to this program in FY 2000 for aging landing gear efforts (\$7 million) and blade repair facility efforts (\$6 million).	(PRAM) add that can be i logy 'ffxes' th This progra astructure . Note: Cong	resses acute incorporatec iat will impi m has a pro' PRAM, a le ress added (reliability a linto existin rove the open ven return or vel-of-fundii \$13 million t	nd maintain ig Air Force rational cap n investmen ng program,	ability (R&N weapon syst ability of we t averaging £ , depends on am in FY 20	M) deficienc tems and sul apon system greater than MAJCOM:	ies by fundii bsystems. Tk is and equipi 13:1 and is a and field sur ; landing gea	ng prototype ne objective ment at a sig t key tool foi poort to impl ar efforts (\$7	PRAM) addresses acute reliability and maintainability (R&M) deficiencies by funding prototypes of developing, that can be incorporated into existing Air Force weapon systems and subsystems. The objective of this program is ogy 'fixes' that will improve the operational capability of weapon systems and equipment at a significantly lower. This program has a proven return on investment averaging greater than 13:1 and is a key tool for reducing the total astructure. PRAM, a level-of-funding program, depends on MAJCOM and field support to implement the Note: Congress added \$13 million to this program in FY 2000 for aging landing gear efforts (\$7 million) and
333333	### Thousands	Used to the continued airframe R&M efforts to reduce overall Air Force operations and support costs. Continued space system efforts to improve mission readiness. Started and completed high priority, quick response R&M projects identified by the operational commands to reduce maintenance downtime. Initiated and completed Modeling and Reengineering effort. Completed Aging Landing Gear Life Extension program tasks. Total	rts to reduce s to improve ority, quick 1 ing and Reer ar Life Exten	overall Air mission rea response R& igineering e sion progra	Force operal diness. &M projects :ffort. m tasks.	tions and su identified b	pport costs. y the operati	onal comma	nds to reduc	e maintenan	ice downtime.
99	FY 2000 (\$ in Thousands) \$6,500 Init cap	Initiate subsystem reliability and maintainability (R&M) projects that will reduce the overall maintenance burden, improve subsystem capabilities and reliability, and improve mission readiness, to include a Turbine Engine Disk Stress effort to measure in-service disks during repair/overhaul to track the onset of low cycle fatigue damage on an individual disk basis, creating the ability to predict remaining life and	nd maintaina improve mis set of low cy.	bility (R&I) ssion readin cle fatigue d	M) projects thess, to includate and	hat will redu de a Turbine n individual	uce the overa Engine Dis disk basis, c	all maintenar k Stress effo reating the a	nce burden, i vrt to measur ıbility to pre	improve sub e in-service dict remaini	system disks during ng life and
වල	\$463 \$1,550	providing an engineering basis for service life extension. Continue airframe reliability and maintainability (R&M) efforts to reduce overall Air Force operations and support costs. Continue efforts for aerospace support equipment and base infrastructure R&M enhancements to increase equipment reliability, to include a	nd maintaina support equi	ife extensio bility (R&N pment and b	n. A) efforts to⊥ base infrastr	reduce over	all Air Force I enhanceme	operations and to obtain	and support	costs. ıt reliability,	to include a
ā	Project 672146			Page	Page 1 of 5 Pages	S			Ш	xhibit R-2	Exhibit R-2 (PE 0708026F)

	RDT&E BL	RDT&E BUDGET ITEM JUSTIFICATION	STIFICATION SHEET (R-2 Exhibit)	()	DATE February 2000	2000
900 01	вирсет Астиитү 07 - Operational System Development	Development	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	y, Reliability, ,	Availability,	РРОЈЕСТ 672146
(C)	A. Mission Description Continued	tinued				
9	FY 2000 (\$ in Thousands) Continued programmable	ids) Continued programmable circuit card project that will provide the ability to create a replacement of failed circuit cards wherever needed for most	ability to create a replacement o	of failed circuit card	's wherever needed for m	oet
9999	\$6,000 Start and cor \$7,000 Start and cor \$562 Continue hig \$22,075 Total	applications. Start and complete tasks on Lean Blade Repair at Oklahoma City Air Logistics Center. Start and complete additional tasks on Aging Landing Gear Life Extension. Continue high priority, quick response R&M projects identified by the operational commands to reduce maintenance downtime. Total	thoma City Air Logistics Center. Gear Life Extension. identified by the operational com	mands to reduce mis	aintenance downtime.	
99	EY 2001 (\$ in Thousands) \$5,762 Contin	ids) Continue work in subsystem R&M projects that will reduce the overall maintenance burden, improve subsystem capabilities and reliability, and	duce the overall maintenance bu	rden, improve subs	ystem capabilities and re	liability, and
99	\$2,000 Continu \$3,890 Continu	improve mission readiness. Initiate Engine Oil Analysis project to improve fighter aircraft engine maintainability. Continue airframe R&M efforts to reduce overall Air Force operations and support costs. Continue efforts in support equipment and base infrastructure R&M to reduce maintenance costs and increase equipment availability. A	sis project to improve fighter airc Force operations and support cos ructure R&M to reduce mainten:	raft engine maintaints. ts. ince costs and incre	nability. ase equipment availabilit	lty. A
9	\$3,000 Initiate	potential effort involves upgrading a circuit poard tester to make the system rully supportable for the next 10-15 years. Initiate R&M efforts that directly support military space and missile systems, including replacing the Constellation Control System to reduce	er to make the system rully supports and missile systems, including	replacing the Cons	10-15 years. stellation Control System	1 to reduce
99	\$575 Continu \$15,227 Total	operations and sustainment costs. Continue high priority, quick response R&M projects identified by the operational commands to reduce maintenance downtime. Total	identified by the operational com	mands to reduce mands	aintenance downtime.	
9	B. Budget Activity Justification This program is in Budget Activity 7, Operational Syst	y 7, Operational Syst	em Development, because it provides support to systems in operational use.	as in operational use	ம்	
9	C. Program Change Summary (\$ in Thousands)	ıry (\$ in Thousands)				
55	Previous President's Budget (FY 2000 PBR) Appropriated Value	FY 2000 PBR)	F <u>Y 1999</u> 10,440 10,470	FY 2000 9,382 22,382	<u>FY 2001</u> 17,341	Total Cost
9	Adjustments to Appropriated value a. Congressional/General Reductions b. Small Business Innovative Research	value uctions Research	-30 -296	;		
<u>or</u>	c. Ontinibus of Outel Above Intestion Reprogram Project 672146		Page 2 of 5 Pages	-121	Exhibit R-2 (PE 0708026F)	: 0708026F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	A JUSTI	:ICATION	SHEET	(R-2 Ex	nibit)		DATE		February 2000	000	
20	вирсет Астилту 07 - Operational System Development			PE NUMBEI 070802(Maintail	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	tivity, Re	liability,	Availa	ıbility,		РРОЈЕСТ 672146	
9	C. Program Change Summary (\$ in Thousands) Continued	ds) Continue	'Di		FV 1999	FV	FV 2000	FV 2001	5		Total Cost	ta c
	d. Below Threshold Reprogram				48	े इ.	7	7 7 7	3		TOTAL	3
	e. Rescissions				-56	ı	-186					
59	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	BR			10,040	22,	22,075	-2,114 15,227	14 27		at at	TBD
9	Significant Program Changes: FY 2001 funding decrease due to higher priority Air Force requirements.	7 Air Force re	quirements.									
9	D. Other Program Funding Summary (\$ in Thousands)	housands)										
,		EY 2000 Estimate	EY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	EX 2005 Estimate	005. nate	Complete	٩£	Total Cost	jost
99	AF RDT&E Other APPN (U) Related Activities: (U) PE 0605011F, RDT&E for Aging Aircraft.									1		
9	E. Acquisition Strategy All projects within this Program Element are awarded competitively, either by full and open competition or by amending task order contracts with competition for subcontracts.	arded compet	itively, either t	y full and ope	n competition	ı or by amenc	ling task or	der contra	acts with c	competiti	n for	
<u>e</u>	F. Schedule Profile			7001 771	,	į	000			200		
			-	2 3	9 K	1 2 E	EY 2000 2 3	4	_	2 × 2001	1 3 4	
999	Blade Repair Contract Award Request For Proposal Release Contract Awards		*	* * *	*	× × ×	×	×	××	××	×	
	Project 672146		Pag	Page 3 of 5 Pages	S				Exhibit R	(-2 (PE 0	Exhibit R-2 (PE 0708026F)	口
				1642								

	RDT&E PROGRAM ELEMEN	SRAM ELE		/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	00
9008 - 20	вирсет Астиитү 07 - Operational System Development	Developme	nt		PE NUMBE 070802 Mainta	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	tivity, Rel	liability, A	vailability		РРОЈЕСТ 672146
(G	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousand	(হা								
53	Blade Tip Repair Project		Ç				FY 1999 5,470	<u>5,470</u>	6,000 6,000	21 o 4	FY 2001
33	Subsystem Keliability & Maintainability (K&M) Aero Support Equipment and Base Infrastructure R&M	intainability (K& I Base Infrastruc	ture R&M					- 0	6,500 1,550	20	5,762 3,890
99	Airframe R&M Space Systems R&M						~1 CV	303 204	463	63 0	2,000
333	Quick Response Aging Landing Gear Life Extension Total	tension					3,9 10,0	89 3,974 10,040	562 7,000 22,075	5 0 2	575 0 15,227
3	B. Budget Acquisition History and Planning Information (S in Thousands)	ry and Plannin	g Information	(\$ in Thousand	ଜ						
3	Performing Organizations:										
	Contractor or	Contract									
	<u>Government</u> Performing	Method/1ype or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations	zations		į	į		,				
	Numerous	Various	Various	N/A	A/N	3,028	300	4,462	14,227	Continuing	TBD
	Cockheed-Martin	various Various	various Various	N/A N/A	Y X	510	9,140 200	13,000		o c	32,043 951
	Jentek Sensors	CPFF	Jul 98	N/A	N/A	177	120	0	0	0	297
	Raytheon	FFP	TBD	N/A	N/A	0	0	300	0	0	300
	Southwest Research	FFP	TBD	N/A	N/A	0	0	100	0	0	100
	TASC	FFP	TBD	N/A	N/A	0 0	0 0	40	0 0	0	40
	Survival inc Bren-Tronics	FFP FFP	TBD	N N	K K	- -	o c	82 778	o c	-	85 778
	Sandia Corp	FFP	TBD	N/A	N/A	0	0	40	0	0	40
-	General Research Corp	FFP	TBD	N/A	N/A	0	0	800	0	0	800
<u> </u>	Project 672146			Page	Page 4 of 5 Pages	Sa			Exhibi	Exhibit R-3 (PE 0708026F)	08026F)

RDT&E PROGRAM ELEMENT	GRAM EL		I/PROJECT C	OST BR	COST BREAKDOWN (R-3)	WN (R-3)	:	DATE Fe	February 2000	8
вирсет Астіvіту 07 - Operational System Development	n Developm	ıent		PE NUMBE 070802 Maintai	PE NUMBER AND TITLE 0708026F Productivity, Reliability, Availability, Maintainability Program	ctivity, Rel	liability, A	vailability		PROJECT 672146
(U) Performing Organizations Continued: Product Development Organizations Fatigue Mgmt Associates FFP SAIC FFP Government Various Support and Management Organizations In house support	is Continued; anizations FFP FFP Various Organizations	Dec 99 Dec 99 Various	N/A N/A N/A	N/A N/A N/A	0 0 1,254	0 0 280	665 465 1,000	0 0 1,000	0 0 Continuing	665 465 TBD
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evoluction	izations nent agement				<u>Total Prior</u> to FY 1999 14,872	Budget FY 1999 10,040	Budget FY 2000 22,075	Budget FY 2001 15,227	Budget to Complete TBD	Total Program TBD
Total Project					14,872	10,040	22,075	15,227	TBD	TBD
Project 672146			Page	Page 5 of 5 Pages	S			Exhibit	Exhibit R-3 (PE 0708026F)	8026F)

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	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 E)	chibit)		DATE	Februa	February 2000
900 - 20	вирсет аститу 07 - Operational System Development			PE NUMBER AND TITLE 0708071F Joint System	R AND TITLE F Joint	PE NUMBER AND TITLE 0708871F Joint Logistics Program - Ammunition System	s Prograi	m - Amm	unition	PROJECT 674679
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674679	79 Ammunition Management Standard System	14,698	11,271	11,238	11,341	11,457	11,686	11,918	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
9	A. Mission Description Air Force is the Executive Agent for Joint Ammunition Management Standard System (JAMSS). JAMSS is the joint migration system being developed to improve and integrate ammunition management business functions and data across the DoD. It directly supports the goals of the DoD Logistics Strategic Plan (1996 edition) to: reduce logistics response times, provide total asset visibility, develop seamless logistics systems, and streamline the logistics infrastructure. When fully operational, JAMSS will provide integrated, flexible, and timely ammunition management information necessary for the planning, provisioning, and sustainment of military operations world-wide. The first release of the system will contain sufficient functionality to all Services to allow the current legacy systems to either be turned off completely or used minimally. The functionality to be included in the first release of JAMSS has been identified by the Munitions Management Systems Sub Group of the Joint Ordnance Commander's Group. Additional required functionality will be added in future releases based upon Service priority and available funding. When completely developed, integrated and implemented JAMSS will support functionality for all ammunition management at the Inventory Control Point (ICP) and command levels. This program is in Budget Activity 7 - Operational System Development.	on Managem s and data ac sibility, deve ammunition I m will contain oe included it required fun AMSS will s	ent Standar ross the Dol lop seamles nanagement n sufficient 1 the first rel ctionality w upport funct	an Management Standard System (JAN and data across the DoD. It directly sibility, develop seamless logistics systemunition management information to will contain sufficient functionality the included in the first release of JAMS required functionality will be added in tMSS will support functionality for all 7 - Operational System Development.	AMSS). JAJ v supports the stems, and n necessary v to all Servi ISS has bee in future rel all ammunit	MSS is the jour post of the goals of the streamline the for the plannices to allow in identified beases based iton manager	oint migratic he DoD Log he logistics i ing, provisic the current by the Muni upon Servic nent at the I	on system be istics Strateg infrastructure oning, and st legacy syste tions Manag e priority an nventory Co	ing develope gic Plan (199 e. When full ustainment o ms to either ement Syste d available f antrol Point (ed to improve and 6 edition) to: y operational, f military be turned off ms Sub Group of unding. When
999999	FY 1999 (\$ in Thousands) \$11,183 Software Development \$2,850 Support Contractors, Mission support, etc \$573 GFE/COTS \$92 GFE and COTS software update, debug, maintenance. \$14,698 Total	support, etc ite, debug, m	aintenance.							
333333	FY 2000 (\$ in Thousands) \$7,595 Software Development \$3,599 Support Contractors, Mission support, etc \$35 GFE/COTS \$42 GFE and COTS software update, debug, maintenance \$11,271 Total	support, etc ite, debug, m	aintenance							
۵	Project 674679		Page	Page 1 of 5 Pages	8			ш	xhibit R-2 (Exhibit R-2 (PE 0708071F)

	RDT&E BUDGET ITEM JU	_	ICATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Exhi	bit)	DA	DATE February 2000	y 2000
901 07	вирсет астипт 07 - Operational System Development	:		PE NUMBER AND TITLE 0708071F Joint System	AND TITLE F Joint Lo	PE NUMBER AND TITLE 0708871F Joint Logistics Program - Ammunition System	gram - An	nmunition	РРОЈЕСТ 674679
<u>(</u> 2)	A. Mission Description Continued								
55555	FY 2001 (\$ in Thousands) \$7,027 Software Development \$3,902 Support Contractors, Mission support, etc \$3,902 GFE and COTS software update, debug, maintenance \$11,238 Total	sion support, update, debuş	etc 3, maintenance	•					
9	B. Budget Activity Justification This program is in Budget Activity 7 - Operational System Development because it modernizes automated information systems.	nal System De	velopment bed	cause it moden	nizes automate	d information s	ystems.		
3	C. Program Change Summary (\$ in Thousands)	ds)							
56	Previous President's Budget (FY 2000 PBR)				FY 1999 16,021	FY 2000 11,333	<u>⊢4</u>	FY 2001 11,338	Total Cost TBD
(3)					-65				
	b. Small Business Innovative Researchc. Omnibus or Other Above Threshold Reprogram	ım			-384	-62			
	d. Below Threshold Reprogram e. Rescissions				-857 -82				
99		Ж.			14,698	11,271		-100 11,238	TBD
9	Significant Program Changes: IOC has slipped from Dec 99 to Mar 02								
<u> </u>	D. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000 Actual Estimate	Iousands) FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to	Total Cost
9	(U) Not Applicable								
	Project 674679		Pag	Page 2 of 5 Pages				Exhibit R-2 (F	Exhibit R-2 (PE 0708071F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE	February 2000
908 07	BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0708071F Joint Logistics Program - Ammunition System	PROJECT ion 674679
Ð	E. Acquisition Strategy DISA's Defense Enterprise Integration Services (DEIS II) contract was used to award the JAMSS development c full and open competition. The contractors selected under the DEIS II contract will compete for future business.	 contract was used to award the JAMSS development contract. DISA's DEIS II contract was awarded under er the DEIS II contract will compete for future business. 	ct was awarded under
9	F. Schedule Profile	FY 1999 FY 2000 5 3 4 1	EY 2001
5555	Preliminary Prototype Review Initial Contractor Test Contract Modification Final Contractor Test System Qualification Test (SQT) * - Denotes completed event. X - Denotes planned event.	* *	· ×
Щ	Project 674679	Page 3 of 5 Pages Exhib	Exhibit R-2 (PE 0708071F)

RDT8	RDT&E PROGRAM ELEMENT	N ELE	MENT/PF	PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	000
BUDGET ACTIVITY 07 - Operational System Development	il System Deve	lopmeı	Jt.		PE NUMBEI 070807' System	PE NUMBER AND TITLE 0708071F Joint L System	ogistics F	PE NUMBER AND TITLE 0708071F Joint Logistics Program - Ammunition System	Ammuni	tion	РКОЈЕСТ 674679
(U) A. Project Cos	A. Project Cost Breakdown (\$ in Thousands)	Chousand	(হ				. X:	0001 283	VOC 753	S	1000 233
	lopment EDS						11,	11,183	7,595	73 S	7,027
(U) Other Govt Costs (U) Government Furn	Other Govt Costs Government Furnished Equipment (GFE)/COTS	GFE)/CO	TS				%	2,850 573	3,599 35	35 35	4,015 0
(U) GFE and COTS (U) Total	GFE and COTS software update, debug, maintenance Total	bug, mair	itenance				14,	92 14,698	42 11,271	42 271	196 11,238
(U) B. Budget Acq	B. Budget Acquisition History and Planning Inform	Plannin	g Information	ation (\$ in Thousands)	ন্ত্র						
(U) Performing Organizations:	ganizations; Contract	act									
Government	Metho	Method/Type	Award or	Performing	Project						
Performing	or Funding	ading 1	Obligation Deta	Activity	Office	Total Prior	Budget EV 1000	Budget	Budget EV 2001	Budget to	Total
Product Develo	Activity Product Development Organizations	잌	<u>Narc</u>	707	727	10 F 1 1222	F 1 1777	F 1 2000	F 1 2001	and in the second	riogiam
EDS	Cost +	Cost + Award 7 Jul 97	7 Jul 97	43,254	45,774	13,156	11,183	7,595	7,027	Continuing	TBD
	Fee				1	c	c	d	c		į
Unknown	TBD				17,038	0	0	0	0	Continuing	TBD
Support and Mar Innolog, KPMG,	Support and Management Organizations Innolog, KPMG,	Suco		16,612	16,612	4,787	1,793	2,147	2,211	Continuing	TBD
MITRE, MCR				t	t	•	i	•	•		
SFO WFAFB GFE and COTS software	software TBD		TBD	17,528 4,990	17,528 4,990	1,450 80	92 <i>1</i> 92	1,152	1,495 196	Continuing Continuing	TBD
update, debug, maintenance	naintenance.)	
Test and Evalue	Test and Evaluation Organizations			100	700	ć		ć	ć		i i
Army OF LEC				1,704	1,704	200	000	000	909	Continuing	TRD
									ı	0	
050750				É	9				i L	, c	, C C C C C C C C C C C C C C C C C C C
Project 6/46/9				Pag	rage 4 of 5 rages	es			EXUID	Exhibit K-3 (PE 0/080/1F)	/U8U/1F)

RDT&E PROGRAM ELEMENT	SRAM ELE		/PROJECT	COST BREAKDOWN (R-3)	WN (R-3)		DATE Fe	February 2000	8
BUDGET ACTIVITY O7 - Operational System Development	Developme	nt		PE NUMBER AND TITLE 0708071F Joint Logistics Program - Ammunition System	Logistics I	Program -	Ammunit		РРОЈЕСТ 674679
(U) Government Furnished Property: Cont Meth Item Description Vehic	operty: Contract Method/Type or Funding Vehicle	Award or Obligation Date	<u>Delivery</u> <u>Date</u>	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
COTS S/W and H/W GSA Support and Management Property COTS S/W and Hardware GSA	GSA Sc. operty GSA Sch.	As Req'd As Req'd	As Req'd As Req'd	2,246	573	35	0 0	Continuing 0	TBD 0
Test and Evaluation Property Shared with Development Resources Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	nt ement			Total Prior 10 FY 1999 15,402 6,317 403 22,122	Budget FY 1999 11,756 2,812 130 14,698	Budget FX 2000 7,630 3,341 300 11,271	Budget FX 2001 7,027 3,902 309 11,238	Budget to Complete TBD TBD TBD TBD	Total Program TBD TBD TBD TBD
Project 674679			H	Page 5 of 5 Pages			Exhibi	Exhibit R-3 (PE 0708071F)	38071F)

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PE NUMBER: 0708611F

PE TITLE: Support Systems Development

	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	hibit)		DATE	Februa	February 2000
BUDGET 07 - O	вирсет астилту 07 - Operational System Development			PE NUMBER AND TITLE 0708611F Supp	R SUPPO	ort Syste	PE NUMBER AND TITLE OT 108611F Support Systems Development	lopment		
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	23,943	33,198	32,258	28,253	27,207	27,751	27,820	Continuing	TBD
673090	Embedded Computer Resources Support Improvement Program (ESIP)	2,186	2,371	0	0	0	0	0	0	14,046
673318	Product Data Systems Modernization (PDSM)	1,168	1,360	4,697	2,860	2,909	2,966	2,546	Continuing	TBD
674654	Integrated Maintenance Data System (IMDS)*	20,589	29,467	27,561	25,393	24,298	24,785	25,274	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
7	1 2 HOPCH 0001		O OWY DOWN THE O COLLEGE];			

Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million). The Air Force is in the process of transferring these amounts to the correct programs. \$2.0 million was earmarked for the Air Force Knowledge Management Congress added an additional \$8.0 million in RDT&E funds in FY00 for IMDS (\$8.0 million). An additional \$3.0 million was added to the IMDS project for Simulation Program. Because no language accompanied this earmark, the Air Force is in the process of clarifying the intent of the earmark before proceeding. ESIP funding was transferred to PE 0708612F beginning in FY01.

(U) A. Mission Description

and improves readiness support to facilitate rapid software turnaround in response to changing mission and/or threat requirements. The PDSM program (project 673318) updates Air Force digital data standards to commercial industry standards that support the Continuous Acquisition and Life-Cycle Support (CALS) concept. The IMDS program develops and fields an Air Force standard maintenance information system to integrate information systems supporting Air Force maintenance activities into a automates and standardizes weapon system support processes, establishes advanced support methodologies, provides automated tools and infrastructure environments, enhanced decision support system will increase operational production capability and support system efficiency, while decreasing mobility infrastructure requirements single open architecture, modern decision support system that is compatible with the Global Combat Support System - Air Force (GCSS-AF) architecture. This This basket program element supports three separate programs. The ESIP program (project 673090) improves support of embedded computer system software, and cost of operations.

(U) B. Budget Activity Justification

This program is a Budget Activity 7, Operational Systems Development, because projects are being engineered to support already operational weapon systems.

Page 1 of 16 Pages

Exhibit R-2 (PE 0708611F)

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	RDT&E BUDGET ITEM JUSTIFICA	STIFICATION SHEET (R-2 Exhibit)	bit)	DATE Februa	February 2000
BUD(07 -	BUDGET ACTIVITY 17 - Operational System Development	PE NUMBER AND TITLE 0708611F Support	⊌ਹ ਸਾ⊓∟ Support Systems Development		
<u>(£</u>	C. Program Change Summary (\$ in Thousands)	FV 1999	FY 2000	FV 2001	Total Cost
9	Previous President's Budget (FY 2000 PBR)	22,856	22,383	30,917	TBD
99	Appropriated Value Adiustments to Appropriated Value	23,010	33,383		
	a. Congressional/General Reductions	-154	ę,		
	b. Small Business Innovative Research	-725	-182		
	d. Below Threshold Reprogram	1,946			
	e. Rescissions f Other	-134			
55	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	23,943	33,198	1,341	TBD
5	Significant Program Changes: Congress added an additional \$8.0 million in RDT&E funds in FY00 for IMDS (\$8.0 million). An additional \$3.0 million was inadvertently added to this project for Simulation Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million). ESIP funding was transferred to PE 0708612F beginning in FY01.	unds in FY00 for IMDS (\$8.0 million). An additions (SBFDSS)(\$1.5 million), Reengineering and Enatransferred to PE 0708612F beginning in FY01.	onal \$3.0 million wa abling Technologies	s inadvertently added to (\$1.0 million), and Air	this project for Resource Rapid
		Page 2 of 16 Pages		Exhibit R-2	Exhibit R-2 (PE 0708611F)

State Activation System Development Private Pr		RDT&	RDT&E BUDGET ITEM JU	STIFICATION SHEET (R-2A Exhibit)	VTION S	HEET (R-2A E	xhibit)		DATE	Februa	February 2000
Pry 1999 Pry 2000 Pry 2001 Pry 2002 Pry 2003	BUDC 07 -	SET ACTIVITY Operational Sys	stem Development			PE NUMBER 0708611	AND TITLE F Suppo	ort Syste	ms Deve	lopment		PROJECT 673090
P funding transferred to PE 0708612F beginning in FYO1. A Mission Description This project conducts research and development to improve the support of embedded mission-critical software intensive systems. It encompasses automation and standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid turnaround of software in response to changing mission and/or changing threat requirements. EX 1999 (\$\frac{1}{2}\$ in Thousands) S127 Adaptive Software Flight Demonstration (ASFD) \$2305 Adaptive Software Pight Demonstration (ASFD) \$2315 Adaptive Software Founding Off Real-Time (INSERT) \$2305 Analysis of the Architecture Demonstration (WSOAD) \$2316 Reconfigurable Arcospace Computer Emulator (RACE) \$2316 Adaptive Software Technology Development (ASTD) \$2317 Adaptive Software Flight Demonstration (WSOAD) \$2318 Weapon System Open Architecture Demonstration (WSOAD) \$2318 Adaptive Software Technology Development (ASTD) \$2325 Adaptive Software Technology Development (ASTD) \$2318 Adaptive Software Technology Development (ASTD) \$2318 Adaptive Software Technology Development (ASTD) \$2318 Adaptive Software Technology Development (ASTD) \$2325 Adaptive Software Technology Development (ASTD) \$2326 Adaptive Software Technology Development (ASTD) \$2326 Adaptive Software Technology Development (ASTD) \$2327 Adaptive Software Technology Development (ASTD) \$2328 Adaptive Software Technology Development (ASTD) \$2329 Adaptive Software Technology Development (ASTD) \$2320 Adaptive Software Technology Development (ASTD) \$2321 Adaptive Software Technology Development (ASTD) \$2325 Adaptive Software Technology Development (ASTD) \$2326 Adaptive Software Technology Development (ASTD) \$2327 Adaptive Software Technology Development (ASTD) \$2328 Adaptive Software Technology Development (ASTD) \$2329 Adaptive Software Technology Development (ASTD) \$2320 Adaptive Software Flight Demonstration (ASTD) \$2320 Adaptive Software F		COST (\$ ii	n Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
P funding transferred to PE 0708612F beginning in FY01. A. Missian Description This project conducts research and development to improve the support of embedded mission-critical software intensive systems. It en standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid response to changing mission and/or changing threat requirements. EV 1992 (\$\tilde{s}\$ in Thousands) \$127 Adaptive Software Flight Demonstration (ASFD) \$218 Automated Operational Flight Program (OFP) Validation (AutoVal) \$219 Automated Operational Flight Program (OFP) Validation (AutoVal) \$210 Automated Operational Flight Program (OFP) Validation \$210 Automated Operational Flight Program (OFP) Validation \$210 Automated Operational Flight Program (OFP) Validation \$210 Automated Operational Flight Demonstration (RACE) \$210 Reconfigurable Aerospace Computer Emulator (RACE) \$218 Weapon System Open Architecture Demonstration (WSOAD) \$218 Adaptive Software Flight Demonstration (ASFD) \$218 Adaptive Software Flight Demonstration (ASFD) \$22.186 Total EV 2000 (\$\text{s}\$ in Thousands) \$22.186 Reconfigurable Aerospace Computer Emulator (RACE) \$349 Project Software Flight Demonstration Infrastructure Common Operating Environment (RT DII COE) Support \$250 Rea-Time Defense Information Infrastructure Common Operating Environment (VEE) \$250 Rea-Time Defense Information Infrastructure Common Operating Environment (VEE) \$251 Project 6573090 Pages 3 of 16 Pages	67306		ter Resources Support ram (ESIP)	2,186	2,371	0	0	0	0	0	0	14,046
A.Mission Description This project conducts research and development to improve the support of embedded mission-critical software intensive systems. It ensatudardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid and andiantization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid standardization of changing mission and/or changing threat requirements. EV 1999 (\$\$\tilde{s}\$ in Thoussands) \$117	ESIP	funding transferred to	PE 0708612F beginning in FY0	1.								
FY 1999 (\$ in Thousands) \$127 Adaptive Software Flight Demonstration (ASFD) \$305 Adaptive Software Technology Development (ASTD) \$211 Automated Operational Flight Program (OFP) Validation (AutoVal) \$212 Automated Operational Flight Program (OFP) Validation \$213 Automated Operation Systems Re-engineering (EISR) \$2305 Embedded Information Systems Re-engineering (INSERT) \$2306 Reconfigurable Aerospace Computer Emulator (RACE) \$2309 Virtual Test Station (VTS) \$118 Weapon System Open Architecture Demonstration (WSOAD) \$2,186 Total EY 2000 (\$ in Thousands) \$15 Adaptive Software Flight Demonstration (ASFD) \$240 Embedded Information Systems Re-engineering (EISR) \$15 Adaptive Software Evolution for Real-Time (INSERT) \$15 Incremental Software Evolution for Real-Time (INSERT) \$160 Rea-Time Defense Information Infrastructure Common Operating Environment (RT DII COE) Support \$214 Virtual Engineering Environment (VEE) Project 673090 Pages 3 of 16 Pages	<u> </u>	A. Mission Descripti This project conducts standardization of sur response to changing	ion i research and development to im pport processes, advanced suppo mission and/or changing threat i	iprove the su rt methodolo requirements	pport of eml gies, tools a	bedded miss nd environn	ion-critical nents, and re	software inte adiness supp	ensive syster	ms. It encon	npasses autor	mation and software in
Adaptive Software Technology Development (ASTD) \$12.7 Adaptive Software Technology Development (ASTD) \$21.1 Automated Operational Flight Program (CFP) Validation (AutoVal) \$23.05 Benbedded Information Systems Re-engineering (EISR) \$23.05 Incremental Software Evolution for Real-Time (INSERT) \$23.06 Subsequent Station (VTS) \$23.186 Evoil Thousands) \$22.186 Evolution (ASTD) \$22.186 Adaptive Software Flight Demonstration (ASFD) \$23.5 Adaptive Software Technology Development (ASTD) \$23.5 Adaptive Software Evolution for Real-Time (INSERT) \$24.5 Incremental Software Evolution for Real-Time (INSERT) \$24.5 Reconfigurable Aerosapec Computer Emulator (RACE) \$25.5 Adaptive Software Technology Development (ASTD) \$25.5 Adaptive Software Technology Development (ASTD) \$25.5 Adaptive Software Technology Development (ASTD) \$25.5 Adaptive Software Technology Demonstration (IULS TD) \$25.5 Adaptive Software Evolution for Real-Time (INSERT) Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$25.5 Adaptive Software Evolution Infrastructure Common Operating Environment (VEE) \$26.5 Adaptive Software Enformation Infrastructure Common Operating Environment (VEE) Project 673090 Page 3 of 16 Pages	5	FY 1999 (\$ in Thous:	ands)	() = 0; tompo = 0	GED							
Embedded Information Systems Re-engineering (EISR) \$305 Incremental Software Evolution for Real-Time (INSERT) \$439 Virtual Test Station (VTS) \$118 Weapon System Open Architecture Demonstration (WSOAD) \$2,186 Total EY_2000 (\$\$ in Thousand\$\$) \$15 Adaptive Software Flight Demonstration (ASFD) \$315 Adaptive Software Technology Development (ASTD) \$40 Embedded Information Systems Re-engineering (EISR) Incremental Software Evolution for Real-Time (INSERT) Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$460 Rea-Time Defense Information Infrastructure Common Operating Environment (RT DII COE) Support \$514 Virtual Engineering Environment (VEE) Project 673090 Pages 3 of 16 Pages	<u> </u>	\$12/ \$305 \$211	Adaptive Software Filgnt Dem Adaptive Software Technology Automated Operational Flight	onstration (<i>f</i> / Developme Program (OF	NSFD) nt (ASTD) P) Validatic	on (AutoVal						
\$305 Incremental Software Evolution for Real-Time (INSERT) \$376 Reconfigurable Aerospace Computer Emulator (RACE) \$439 Virtual Test Station (VTS) \$118 Weapon System Open Architecture Demonstration (WSOAD) \$2,186 Total EY_2000 (\$\$ in Thousands) \$15 Adaptive Software Flight Demonstration (ASFD) \$325 Adaptive Software Technology Development (ASTD) \$40 Embedded Information Systems Re-engineering (EISR) Incremental Software Evolution for Real-Time (INSERT) \$115 Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$460 Reconfigurable Aerosapce Computer Emulator (RACE) \$70 Rea-Time Defense Information Infrastructure Common Operating Environment (VEE) \$714 Virtual Engineering Environment (VEE) \$720 Page 3 of 16 Pages	3	\$305	Embedded Information System	is Re-engine	ering (EISR)							
\$139 Virtual Test Station (VTS) \$118 Weapon System Open Architecture Demonstration (WSOAD) \$2,186 Total EY 2000 (\$ in Thousands) \$15 Adaptive Software Flight Demonstration (ASFD) \$205 Adaptive Software Technology Development (ASTD) \$15 Adaptive Software Technology Development (ASTD) \$16 Embedded Information Systems Re-engineering (EISR) Incremental Software Evolution for Real-Time (INSERT) Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$115 Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$150 Rea-Time Defense Information Infrastructure Common Operating Environment (RT DII COE) Support \$1514 Virtual Engineering Environment (VEE) Project 673090 Pages 3 of 16 Pages	99	\$305 \$376	Incremental Software Evolutio	n for Real-Ti	ime (INSER	£.						
\$118 Weapon System Open Architecture Demonstration (WSOAD) \$2,186 Total EY 2000 (\$ in Thousands) \$15 Adaptive Software Flight Demonstration (ASFD) \$325 Adaptive Software Technology Development (ASTD) \$40 Embedded Information Systems Re-engineering (EISR) Incremental Software Evolution for Real-Time (INSERT) \$115 Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$460 Reconfigurable Aerosapce Computer Emulator (RACE) \$70 Rea-Time Defense Information Infrastructure Common Operating Environment (VEE) \$514 Virtual Engineering Environment (VEE) Project 673090 Pages	(E)	\$439	Virtual Test Station (VTS)	1								
FY 2000 (\$ in Thousands) \$15 Adaptive Software Flight Demonstration (ASFD) \$325 Adaptive Software Technology Development (ASTD) \$40 Embedded Information Systems Re-engineering (EISR) Incremental Software Evolution for Real-Time (INSERT) \$115 Incremental Upgrade of Legacy Systems Technology Demonstration (IULS TD) \$460 Reconfigurable Aerosapce Computer Emulator (RACE) \$70 Rea-Time Defense Information Infrastructure Common Operating Environment (RT DII COE) Support \$514 Virtual Engineering Environment (VEE) Page 3 of 16 Pages	<u>3</u> 9	\$118 \$2,186	Weapon System Open Archited Total	cture Demon	stration (WS	(OAD)						
	<u> 666666666</u>	EY 2000 (\$ in Thous: \$15 \$325 \$40 \$415 \$115 \$70 \$514	ands) Adaptive Software Flight Dem Adaptive Software Technology Embedded Information System Incremental Software Evolutio Incremental Upgrade of Legacy Reconfigurable Aerosapce Cor Rea-Time Defense Information Virtual Engineering Environme	onstration (A Developme Is Re-engine In for Real-Ti y Systems Te Infrastructu ont (VEE)	ASFD) ring (EISR) rine (INSER cchnology D ator (RACE) re Common	T) emonstratio) Operating F	n (IULS TE Invironmen) t (RT DII CC)E) Support		hibit R-2A (PE 0708611F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ET ITEM	JUSTIF	CATION	SHEET (F	8-2A Exh	libit)	Δ	DATE February 2000	2000
8UD 07.	вирсет астилту 07 - Operational System Development	elopment			PE NUMBER AND TITLE 0708611F Supp	AND TITLE Support	Systems	PE NUMBER AND TITLE 0708611F Support Systems Development	ent	PROJECT 673090
9	A. Mission Description Continued	'n								
999	FY 2000 (\$ in Thousands) Continued \$417 Weapon Syster \$2,371 Total	<u>ued</u> stems Open ∤	ids) Continued Weapon Systems Open Architecture (WSOA) Total	.SOA)						
999	EX 2001. (\$ in Thousands) \$0 No Activity \$0 Total	' (ESIP fundii	ıg transferred t	o PE 0708612	<u>nds)</u> No Activity (ESIP funding transferred to PE 0708612F beginning in FY01) Total	FY01)				
9	B. Project Change Summary N/A									
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 Actual Estimate	mary (\$ in T FY 1999 Actual	housands) FY 2000 Estimate	FY 2001 Fertimate	FY 2002 Ferimate	FY 2003 Fetimate	FY 2004 Ferimate	FY 2005 Fertimate	Cost to	Total Cost
999	AF RDT&E Other APPN Other Procurement AF, BA 3, P-1:55, ESIP, PE 78611F	2,356	11,635	0	0	0	0	0	Continuing	TBD
9	ESIP funding transferred to PE 0708612F starting in FY01. D. Acquisition Strategy All major contracts are awarded after full and open competition.)8612F startii er full and op	ng in FY01. en competitior							
9	E. Schedule Profile			-	EV 1999	4	EXZ	EX 2000	FY 2001	2001 3 4
5555	Start Adaptive Software Flight Demonstration (ASFD) ASFD Demo Adaptive Software Technology (ASTD) Demos	nonstration (. STD) Demos	ASFD)	•	i *	· **	1 · *		1	
333	Start Embedded Information Systems Re-engineering (EI EISR Demos	ms Re-engine	ering (EISR)		*	*	×			
	Project 673090			Page	Page 4 of 16 Pages				Exhibit R-2A (PE 0708611F)	E 0708611F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	IFICATION S	HEET (R-	2A Exh	ibit)		L)	DATE Fe	February 2000	2000	
вирсет астіvіту 07 - Operational System Development		PE NUMBER AND TITLE 0708611F Suppo	AD TITLE Systems Development	Syster	ns Dev	elopm	ent		PROJECT 673090	ЕСТ 090
(U) E. Schedule Profile Continued	•	<u>Y 1999</u>			EY 2000		,	EY 2001	1007	,
 (U) Incremental Software Evolution for Real-Time (INSERT) Demos (U) Incremental Upgrade of Legacy Systems (IULS) Tech Demos (U) Reconfigurable Aerospace Computer Emulator (RACE) Demos (U) Start Virtual Engineering Environment (U) VEE Demos (U) Was Demo (U) Was Demo (U) Real-Time DII COE IPT Support * denotes completed event X denotes planned event X denotes planned event	Demos nos pemos pemos	ω * *	4 * * * * *	- * ×	~ × × × × ×	4 XX X X	- ×	6 ★	~ ×× ×	4 ××
Project 673090	Page 5	Page 5 of 16 Pages					Exhibit	Exhibit R-2A (PE 0708611F)	= 07086	11F)
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	RDT&E PROGRAM ELEMENT	RAM ELE		(PROJECT COST BREAKDOWN (R-3)	JST BR	EAKDOV	VN (R-3)		DATE Fe	February 2000	8
80C 07	вирсет астилту 07 - Operational System Development	evelopme	nt		PE NUMBER AT 0708611F		rt System	⊌D गा⊓E Support Systems Development	ment	9	PROJECT 673090
3	A. Project Cost Breakdown (\$ in Thousands)	S in Thousan	(S)				FV 1	000	FV 200		FV 2001
(F	(479 V)	0 4)	į				EX 1999	<u> </u>	FY 2000	э.	FX 2001
9 (•	Olistiation (A.	srD)				. •	121	13 326	•	
) E		y Developmen utoVal)	(ASID)					505 211	C75		> <
9		ns Re-engineer	ing (EISR)				• •	305	40) C
3		on for Real-Tin	ne (INSERT)					305	415		0
9		y Systems (IU	LS0 Tech Dem	c				0	115		0
99	Reconfigurable Aerospace Computer Emulator (RACE	mputer Emulat	or (RACE)				•	376	460		0 0
96		ent							514		0 0
3							7	439	0	_	0
99	Weapon Systems Open Architecture (WSOA)	ecture (WSOA	(C	118	417		0 0
9		'E 0708612F st	tarting in FY01.				í	20	2,7,7		>
3	B, Budget Acquisition History and Planning Inform:	<u>y and Plannin</u>	g Information	ation (\$ in Thousands)	(a						
3	Performing Organizations:										
	⊢ a	Contract	•								
	Government	Method/Lype or Funding	Award or Ohligation	Performing Activity	Project	Total Prior	Budget	Rudget	Budget	Budget to	Total
		Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	Product Development Organizations	ations								•	
	SAIC	D.O.	Various	N/A	N/A	4,384	650	381		0	5,415
	TASC	D.O.	Various	N/A	N/A	2,274					2,274
	TRW	D.O.	Various	N/A	N/A	1,525	282	200		0	2,007
	Boeing	D.O.	Various	N/A	N/A	158	493	845		0	1,496
	Lockheed Martin/CMU	D.O.	Various	N/A	N/A	157	761	875		0	1,793
	Other (JAWS, RT DII)					54		70		0	124
ш.	Project 673090			Page	Page 6 of 16 Pages	es			Exhibit	Exhibit R-3 (PE 0708611F)	38611F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	SOST BR	EAKDOV	VN (R-3)		DATE Fe	February 2000	00
вирсет Астииту 07 - Operational System Development	PE NUMBER AN 0708611F	PE NUMBER AND TITLE 0708611F Suppor	rt System	ир тпте Support Systems Development	ment	id 9	PROJECT 673090
(U) Performing Organizations Continued: ESIP funding transferred to PE 0708612F starting in FY01. Support and Management Organizations OO-ALC Test and Evaluation Organizations	K/X	937				0	937
Subtotals Subtotal Support and Management Subtotal Test and Fraintien		Total Prior to FY 1999 8,552 937	Budget FY 1999 2,186	Budget EY 2000 2,371	Budget FY 2001	Budget to Complete 0	Total Program 13,109 937
Total Project		9,489	2,186	2,371		0	14,046
Project 673090	Page 7 of 16 Pages	sə			Exhibi	Exhibit R-3 (PE 0708611F)	8611F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	STIFIC/	VTION S	ЭНЕЕТ (R-2A E	xhibit)		DATE	February 2000	y 2000
91 07	BUDGET ACTIVITY 07 - Operational System Development			PE NUMBER AND TITLE 0708611F Supp	R Suppo	ort Syste	PE NUMBER AND TITLE 0708611F Support Systems Development	lopment		PROJECT 673318
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673318	18 Product Data Systems Modernization (PDSM)	1,168	1,360	4,697	2,860	2,909	2,966	2,546	Continuing	TBD
<u>3</u>	A. Mission Description This project implements the Air Force portion of the Joint Computer-Aided Acquisition and Logistics Support (JCALS) system ensuring the uninterrupted transition of legacy system functional capabilities to the new joint systems.	Joint Compu	ter-Aided A	cquisition a	nd Logistics	Support (JC	ALS) syster	n ensuring t	he uninterrup	ted transition of
<u> </u>	FY 1999 (\$\frac{\text{in Thousands}}{\text{Managed AF}}\$ Sustained Joint Engineering Data Management Information and Control System (JEDMICS). \$152 Sustained Joint Engineering Data Management Information and Control System (JEDMICS). \$154 Sustained Joint Engineering Data Management Information and Control System (JEDMICS). \$155 Plan/participated in JCALS to ensure AF requirements are met Activated AF JCALS sites to ensure timely and accurate data is available and useable \$155 Provided direct support to weapon systems, Logistics and Product Centers, and MAJCOMs \$1,168 FY 2000 (\$\frac{\text{in Thousands}}{\text{Manage AF}}\$ Sustain JEDMICS \$1,818 Develop and maintain digital templates for new acquisition technical orders Plan/participate in JCALS to ensure AF requirements are met \$244 Activate AF JCALS sites to ensure timely and acurate data is available and useable \$255 Test digital data specifications/standards and represent AF at international standards activities \$1,766 Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs \$1,360 Total	ctivities Data Manager gital data tem o ensure AF ra ensure timely ons/standards apon systems templates for ensure AF re nsure timely s/standards an pon systems,	nent Inform plates for ne equirements and accura and represe c, Logistics and and acurate and acurate and represent Logistics ar	ivities tal data templates for new acquisition technical orders tal data templates for new acquisition technical orders ensure AF requirements are met nsure timely and accurate data is available and useable as/standards and represented AF at international standards ac pon systems, Logistics and Product Centers, and MAJCOMs wities sure AF requirements are met sure timely and acurate data is available and useable standards and represent AF at international standards activiti on systems, Logistics and Product Centers, and MAJCOMs	ontrol Syster on technical ailable and unternational Centers, and able and use attional stanulational stanulationa	n (JEDMIC; orders seable standards ac MAJCOMs MAJCOMs	S). s tivities ies			
<u>L</u>	Project 673318		Page	Page 8 of 16 Pages	Se			ú	thibit R-2A (I	Exhibit R-2A (PE 0708611F)
				000.						

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	ICATION	SHEET (F	8-2A Exh	libit)	DA	DATE February 2000	y 2000
97 07	вирсет астіvіту 07 - Operational System Development		PE NUMBER AND TITLE 0708611F Supp	AND TITLE	Systems	ND TITLE Systems Development	ent	PROJECT 673318
<u>(2)</u>	A. Mission Description Continued							
5	001 (\$ in Thousar							
36	5045 Manage AF reconneal data acuyines \$33 Sustain JEDMICS							
3		s for new acquis	sition technical	orders				
99	\$673 Plan/participate in JCALS to ensure AF requirements are met \$1,244 Activate AF JCALS sites to ensure timely and acurate data is available and useable	AF requirements nely and acurate	are met data is availat	le and useable	v			
9		rds and represen	t AF at interna	ional standar	ds activities			
999	\$458 Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs \$1,000 Automated Civil Engineer System (ACES) \$4,697 Total	ems, Logistics a CES)	nd Product Cer	iters, and MA	JCOMs			
<u> </u>	ect Change Su 5 transferred R	omated Civil En	gineer System	into project 3.	318 (PDSM).			
9	C. Other Program Funding Summary (\$ in Thousands) FY 1999 FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to	Total Cost
	Actual Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
99	AF RDT&E Other APPN Not applicable.							
9	D. Acquisition Strategy All major contracts are awarded after full and open competition.	ou.						
3	E. Schedule Profile				Ì		Ì	
		1	EY 1999 2 3	4	FY 2000 1 2 3	2000 3 4	$\frac{\mathbf{FY}}{1}$	EY 2001 2 3 4
<u> </u>	Not applicable. This is a support and management level of effort program. All activities are ongoing.	fort program. A	Il activities are	ongoing.				
ᄔ	Project 673318	Page	Page 9 of 16 Pages		1		Exhibit R-2A (PE 0708611F)	E 0708611F)

	RDT&E PROGRAM ELEMEN	AM ELE		I/PROJECT C	OST BF	COST BREAKDOWN (R-3)	WN (R-3)	-	DATE Fe	February 2000	90
800 07	вирсет астилту 07 - Operational System Development	velopme	ınt		PE NUMBER AN 0708611F		மார் Support Systems Development	s Develop	ment	4 9	РРОЈЕСТ 673318
(£)	A. Project Cost Breakdown (\$ in Thousands)	in Thousan	(sp				FV 1999	000	FY 2000	Ģ	FY 2001
5	Manage AF technical data activities	ties						195	234	3 4	643
3	Plan/participate/activate JEDMICS sites	CS sites						11	18	8	33
3	Test digital data specifications/standards and represent AF at international standards activities	tandards and	represent AF	at international st	indards acti	vities		152	58	&	147
3	Develop and maintain digital data templates for new acquisition technical orders	ta templates	for new acquis	ition technical or	lers			152	183	3	499
9	Plan/participate in JCALS to ensure AF requirements and schedules are met	sure AF requ	irements and so	chedules are met			•	204	245	5	673
9	Activate AF JCALS sites to ensure timely and accurate data is available and useable	are timely ar	nd accurate data	is available and	useable	, Parama	.,	376 78	446	9	1,244
9	rrovide difect support to weapon systems, Logistics and rroduct centers, and major continuance (MAJCOMS)	ii systeilis, r	ogistics and ri	oduci Centers, at		IIIIIaiiids		0/	1	o.	000
9	Automated Civil Engineer System (ACES)	m (ACES)						0		0	1,000
<u>(E)</u>	Total PBD 205 transferred RDT&E funds for FY01-05 for the Automated Civil Engineer System (ACES) into project 3318 (PDSM).	nds for FY0	1-05 for the Au	tomated Civil En	gineer Syst	em (ACES) int	1, to project 3318	1,168 318 (PDSM).	1,360	0	4,697
3	B. Budget Acquisition History and Planning Inform	and Planni	ıg Informatior	nation (\$ in Thousands)	ଜ						
9	Performing Organizations:	Contract									
	ŧ	Method/Type	Award or	Performing	Project		,	,	,	,	1
	Performing or Activity Ve	or Funding Vehicle	<u>Obligation</u> Date	Activity EAC	Office	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
	Development Organiz	Suoi									
	ACES TE	TBD	TBD	N/A	N/A	0	0	0	1,000	Continuing	TBD
	oort and Management Org	izations									
		ECRC	Var	N/A	N/A	6,989	364	423	1,153	Continuing	TBD
	EC	GSA	Var	N/A	Y/A	10,527	588	685	1,893	Continuing	TBD
	5.1 AS Test and Evaluation Organizations	√ 80	v ar	Y/N	¥ Ž	103	710	767	100	Continuing	T T T
							•				
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ц.	Project 673318			Page	Page 10 of 16 Pages	ges			Exhib	Exhibit R-3 (PE 0708611F)	08611F)

RDT&E PROGRAM ELEMENT/PROJECT	COST BREAKDOWN (R-3)	VN (R-3)	DATE	February 2000	00
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 0708611F Suppor	⊌ ПТЕ Support Systems Development	velopment	-	РРОЈЕСТ 673318
(U) Government Furnished Property: Contract Method/Type Award or Method/Type Award or Method/Type Award or Method/Type Award or Or Funding Obligation Delivery Vehicle Date Product Development Property Not Applicable Support and Management Property Not Applicable Test and Evaluation Property Not A miscelle	Total Prior to FY 1999	Budget Bu FY 1999 FY	Budget Budget FY 2000 FY 2001	get <u>Budget to</u> 201 Complete	<u>Total</u> Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 1999 0 17,699 17,699	Budget Bu EY 1999 EY 0 0 1,168 1 1,168 1	EX 2000 EX 2000 0 1,000 1,360 3,697 1,360 4,697	Budget Budget to 7.2001 Complete TBD 3,697 TBD 4,697 TBD	Total Program TBD TBD TBD TBD
Project 673318	Page 11 of 16 Pages		ш	Exhibit R-3 (PE 0708611F)	708611F)

RDT&E BUDGET ITEM JU	JSTIFIC/	ATION S	STIFICATION SHEET (R-2A Exhibit)	R-2A E	xhibit)		DATE	February 2000	y 2000
BUDGET ACTIVITY 07 - Operational System Development			PE NUMBEF 0708611	PE NUMBER AND TITLE 0708611F Suppo	ort Syste	PE NUMBER AND TITLE OT 108611F Support Systems Development	lopment		PROJECT 674654
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674654 Integrated Maintenance Data System (IMDS)*	20,589	29,467	27,561	25,393	24,298	24,785	25,274	25,274 Continuing	ТВD

Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools Congress added an additional \$8.0 million in RDT&E funds in FY00 for IMDS (\$8.0 million). In FY00, an additional \$3.0 million was added to this project for Simulation (\$0.5 million).

A. Mission Description 9

sustained for the foreseeable future. The full IMDS capability is reached through multiple development increments of the application software, each increment building The IMDS program is an information technology program to provide maintenance personnel access to all maintenance information areas under one system. IMDS will on the previous one. Increments 1-3 established core capabilities at the retail level. Increment 4 will begin to incorporate wholesale-level functionality as well as utilize distributed databases, link designated existing legacy systems, and provide an integrated tool for interfacing with certain other legacy systems that will be continue expansion of retail capabilities.

FY 1999 (\$ in Thousands)

5	(CATINGMAILE III @ 1/// 1 4 4 (C	Common
5	\$18,473	IMDS Contract Increment 3 - Base level core capabilities, design and coding, expanded interfaces, and Test Bed Activities.
5	U) \$1,325	Support Contractors (MITRE, Tecolote, TEMS, ITSP)

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SPO Operations. \$791 333

Total \$20,589

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FY 2000 (\$ in Thousands)

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Increment
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\$15,056

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Computer-Based
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Simulation Based Forecasting Decision Support Systems (SBFDSS)

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Air Resource Rapid Reapplication Tools \$1,000

Total
\$29,467
J \$29

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54 Page 12 of 16 P	
Project 67465	

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	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	EM JUSTIF	ICATION	SHEET (I	R-2A Exh	libit)	Δ	DATE February 2000	y 2000
91 04	вирсет аститт 07 - Operational System Development	ınt		PE NUMBER AND TITLE 0708611F Suppo	AND TITLE Support	PE NUMBER AND TITLE 0708611F Support Systems Development	Developm		PROJECT 674654
3	A. Mission Description Continued								
555555	FY 2001 (\$\secondarrow{\epsilon}\$ in Thousands) \$20,586 IMDS System Contract Fielding Requirements. \$782 Support Contractors (MITRE, Tecolote, SenCom, etc.). \$3,193 SPO Operations. \$3,000 Feeder Systems \$27,561 Total	ct Fielding Requi	irements. e, SenCom, etc	Ġ					
9	B. Project Change Summary Congress added an additional \$8.0 million in RDT&E funds in FY00 for IMDS (\$8.0 million). In FY00, an additional \$3.0 million was added to this project for Simulation Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million). The Air Force is in the process of transferring these amounts to the correct programs. For FY01, PBD 726 added \$3.0 million in RDT&E funds to project 4654 (IMDS) for Feeder Systems.	RDT&E funds i oort Systems (SB Force is in the pr eeder Systems.	n FY00 for IM FDSS)(\$1.5 mi rocess of transi	DS (\$8.0 millicilion), Reengir ferring these an	on). In FY00, recring and Ennounts to the c	an additional \$ abling Techno :orrect program	3.0 million wa logies (\$1.0 m 1s. For FY01,	funds in FY00 for IMDS (\$8.0 million). In FY00, an additional \$3.0 million was added to this project for ns (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource For the process of transferring these amounts to the correct programs. For FY01, PBD 726 added \$3.0 millicens.	esource Rapid 3.0 million in
<u>e</u>	C. Other Program Funding Summary (\$ in Thousands) EX 1999 EX 2000 Actual Estimate	1 Thousands) EX 2000 Estimate	FY 2001 Estimate	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to	Total Cost
999	AF RDT&E Other APPN Other Procurement AF, BA 3. 936 P-1:55. IMDS (PE 0708611F).	2,657	2,620	2,615	2,570	2,625	2,673	Continuing	TBD
9	D. Acquisition Strategy All major contracts are awarded after full and open competition.	open competitio	ü						
9	E. Schedule Profile			FY 1999		FY 2000	000	A	FY 2001
<u>С</u>	Project 674654		Page	Page 13 of 16 Pages				Exhibit R-2A (PE 0708611F)	E 0708611F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2000
BUDGET ACTIVITY O7 - Operational System Development	PENUMBER AND TITLE 0708611F Support Systems Development	
(U) E. Schedule Profile Continued	EY 1999 EY 2000 4	EY 200
(U) Beta Support Completed (U) Increment 3 Requirement Definition/Design (U) Development of IMDS core capability (U) OT&E Core (Increments 1, 2, & 3) * denotes completed event X denotes planned event X denotes planned event	· * *	n ×
Project 674654	Page 14 of 16 Pages	Exhibit R-2A (PE 0708611F)

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	I/PROJECT COST BREAKDOWN (R-3)	OST BR	EAKDOV	WN (R-3)		DATE Fe	February 2000	_ e
BUE 07	вирсет астилту 07 - Operational System Development	Jevelopme	nt		PE NUMBER AI 0708611F	• /	rt System	ID TITLE Support Systems Development	ment	9	PROJECT 674654
<u>(</u>	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	ds)				0001 753	000	000 XI	9	TX 2001
9	IMDS System Contract							18.473	15.056	21 •૦	20.586
3	_	velopment					`	0	6,500	0	,
9	Expeditionary Air Force Pre-Deployment and Rapid Data Download Capability Development	Deployment and	d Rapid Data D.	ownload Capabill	ity Develop	ment		0	1,500	0	0
9							Τ,	1,325	584	4	782
9			į				•	791	2,827	7	3,193
9		; Decision Supp	oort Systems (Si	BFDSS)				0 (1,500	0	0
<u> </u>	Reengineering and Enabling Technologies Air Resource Rapid Reapplication Tools	i ecnnologies ition Tools						0 0	1,000	.	0 0
<u> </u>	, ,							0	0		3,000
9	•						20,	20,589	29,467	7	27,561
	Congress added an additional \$8.0 million in RDT&E funds in FY00 for IMDS (\$8.0 million). In FY00, an additional \$3.0 million was added to this project for Simulation Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million). The Air Force is in the process of transferring these amounts to the correct programs. For FY01, PBD 726 added \$3.0 million in RDT&E funds to project 4654 (IMDS) for Feeder Systems.	\$8.0 million in Decision Supplifon). The Air H(IMDS) for Fe	RDT&E funds out Systems (S) Force is in the preder Systems.	funds in FY00 for IMDS (\$8.0 million). In FY00, an additional \$3.0 million was added to this project for ms (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource In the process of transferring these amounts to the correct programs. For FY01, PBD 726 added \$3.0 milliems.	SS (\$8.0 million), Reeny erring these	lion). In FY00 gineering and I amounts to the	0, an addition. Enabling Tech e correct progr	al \$3.0 millior mologies (\$1.1 rams. For FY	n was added t 0 million), an '01, PBD 726	o this project f id Air Resourc added \$3.0 m	or e Rapid Ilion in
9	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannin	g Information	(S in Thousands	e e						
9	Performing Organizations:	Contract									
	Government	Method/Type	Award or	Performing	Project						
	<u>Performing</u> Activity	or Funding Vehicle	Obligation Date	Activity	Office FAC	Total Prior	Budget FV 1999	Budget FV 2000	Budget FV 2001	Budget to	Total Program
	Product Development Organizations	ations						7			
	Andersen Consulting	CPAF	19 Jul 96	N/A	N/A	22,106	18,473	15,056	20,586	Continuing	TBD
	Various/Proof of	N/A	N/A	N/A	N/A	7,079	0	0	0	0	7,079
	Concepts/Prototypes Computer Based Training	TBD	TBD	N/A	N/A	0	0	6,500	0	0	6,500
	Dev	i	!			,					
_	Expeditionary AF Pre-Deployment & Rapid	TBD	TBD	N/A	N/A	0	0	1,500	0	0	1,500
	Project 674654			Page	Page 15 of 16 Pages	žes			Exhibi	Exhibit R-3 (PE 0708611F)	38611F)

	RDT&E PRC	PROGRAM ELEMEN		I/PROJECT CO	OST BF	COST BREAKDOWN (R-3)	NN (R-3)		DATE F (February 2000	00
- 20 Dana	вирсет астилту 07 - Operational System Development	n Developm	ent		PE NUMBER AI 0708611F		மார் Support Systems Development	s Develop	ment	9	РРОЈЕСТ 674654
9	Performing Organizations Continued: Product Development Organizations Data Download Capability Dev	ns Continued: anizations									
	TBD	TBD	TBD	TBD	TBD	0	0	3,000	0	0	3,000
	Feeder Systems Support and Management Organizations	TBD Organizations	TBD	N/A	N/A	0	0	0	3,000	0	3,000
	Support Contractors	Var	Var	N/A	N/A	8,129	1,325	584	782	Continuing	TBD
	SrO Operations Test and Evaluation Organizations	IN/A nizations	Y /Y	A/N	K/N	6,2,2	16/	170,7	5,195	Continuing	Ugi
	Subtotals					Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total. Program
	Subtotal Product Development	nent				29,185	18,473	26,056	23,586	TBD	TBD
	Subtotal Support and Management	agement				10,387	2,116	3,411	3,975	TBD	TBD
	Subtotal Test and Evaluation Total Project	uo				39,572	20,589	29,467	27,561	TBD	TBD
	FY00 amount includes the Congressionally added amount of \$3.0 million that was added to this project for Simulation Based Forecasting Decision Support Systems (SBFDSS)(\$1.5 million), Reengineering and Enabling Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million).	Congressionally Reengineering an	added amount of d Enabling Techno	unt of \$3.0 million that was added to this project for Simulation Based Forecasting Decis Technologies (\$1.0 million), and Air Resource Rapid Reapplication Tools (\$0.5 million)	t was added Ilion), and	to this project	for Simulation apid Reapplic	n Based Forec	casting Deci: \$0.5 million)	sion Support S.	ystems
σ.	Project 674654			Page	Page 16 of 16 Pages	ges			Exhit	Exhibit R-3 (PE 0708611F)	'08611F)

	RDT&	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFIC	ATION	SHEET	(R-2 Ex	thibit)		DATE	Februa	February 2000
80DC 07 -	вирсет астічіту 07 - Operational Sys	вирсет астіліту 07 - Operational System Development			PE NUMBER AND TITLE 0708612F Comp Program	RAND TITLE F COMP	uter Res	ources S	Support I	mproven	PEOJECT 0708612F Computer Resources Support Improvement674851 Program
	COST (\$ ir	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674851	51 Embedded Comp Res Spt Prog Impr	tes Spt Prog Impr	0	0	2,356	3,363	3,416	3,485	3,553	Continuing	TBD
	Quantity of RDT&E Articles	Articles	0	0	0	0	0	0	0	0	0
Note	: In FY 2001, funding	Note: In FY 2001, funding was moved to this PE from PE	0708611F, Project 673090.	roject 6730	90.						
Ð	A. Mission Description This program conducts r of support processes, admission and/or changing	esearch and development to vanced support methodologie threat requirements.	improve the	support of n environmen	nission-critic	al software ness support	intensive sy: t to facilitate	stems. It en rapid turnar	compasses a	utomation a tware in resp	improve the support of mission-critical software intensive systems. It encompasses automation and standardization is, tools and environments, and readiness support to facilitate rapid turnaround of software in response to changing
999	EY 1999 (\$ in Thousands) \$0 Prev \$0 Tota	ands) Previously accomplished in PE 0708611F. Total	3 0708611F.								
999	FY 2000 (\$ in Thousands) \$0 Pre \$0 Tot	ands) Previously accomplished in PE Total	E 0708611F.								
55	EY 2001 (\$ in Thousands) \$350 Cor soft app	Continue Adaptive Software Technology Development (ASTD). The objective of ASTD is to develop, demonstrate, and transfer adaptive software techniques for embedded weapon system software. The ASTD effort provides the defense software development community with an application design methodology allowing the use of commercial and emerging technologies to construct robust, platform-independent, resource	Cechnology I Ided weapon sy allowing t	System soft he use of co	echnology Development (ASTD). The objective of ASTD is to develop, demonstrate, and transfer adaptive ded weapon system software. The ASTD effort provides the defense software development community with allowing the use of commercial and emerging technologies to construct robust, platform-independent, rescondito hoth mission profile changes (e.g., change from Air-to-Air to Air-to-Ground comb	The objective ASTD effort of emerging on profile of	e of ASTD is provides the technologies	s to develop; defense sol s to construc	, demonstrat ftware devel trobust, pla	e, and transf opment com ifform-indep	er adaptive munity with an endent, resource round combat)
<u>(</u>	\$125	and dynamic mission events that drive changing computational resource requirements, such as increased numbers of targets or hardware failures. Continue Incremental Upgrade of Legacy Systems Tech Demo (IULS TD). The object of IULS TD is to develop, demonstrate, and transition technology that will enable cost-effective, incremental improvements to fielded embedded information systems, affordably allowing systems to	at drive charse of Legacy st-effective,	nging comp Systems Tec incremental	utational reschibility of IU	ource requir LS TD). Thats to fielded	rements, such the object of I dembedded	as increase IULS TD is information	d numbers o to develop, o systems, aff	of targets or l demonstrate, fordably allo	hardware failures., and transition wing systems to
(5)	(U) \$300	operate in a 'system or systems'. Continue Reconfigurable Aerospace Computer Emulator (RACE). The object of RACE is to improve the reliability and maintainability of	ıs. ospace Comp	outer Emula	tor (RACE).	The object	of RACE is	to improve	the reliabilit	y and mainta	ninability of
۵.	Project 674851			Page	Page 1 of 6 Pages	S				Exhibit R-2	Exhibit R-2 (PE 0708612F)

	RDT8	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2000
8008 07 -	вирдет АстіvітУ 07 - Operational Sy	BUDGET ACTIVITY 07 - Operational System Development Program	PROJECT 0708612F Computer Resources Support Improvement 674851 Program
(D)	A. Mission Description Continued	tion Continued	
9	FY 2001 (\$ in Thousands) Continued	sands) Continued	
<u> </u>	\$75	aging/obsolete on-board aerospace computers by replacing them with commercial microprocessor-based computer emulation technology; providing for backward compatibility with existing mission critical software and allowing for incremental software upgrades on new Commercial-Off-The-Shelf (COTS) processors. Continue Real-Time Defense Information Infrastructure Common Operating Environment (RT DII COE). The objective of RT DII COE is to extend the ideas for reuse and commonality to improve the effectiveness of systems performing real-time Command and Control (C2) missions. Our participation provides the RT DII COE effort with needed real-time embedded system experience, adds to the effectiveness of the Computer Our participation provides the RT DII COE effort with needed real-time embedded system experience, adds to the effectiveness of the Computer	essor-based computer emulation technology; r incremental software upgrades on new T DII COE). The objective of RT DII COE is to ng real-time Command and Control (C2) missions. Experience, adds to the effectiveness of the Computer of the c
<u>(</u> 2)	\$636	Resource Support Improvement Program's (CRSIP's) Weapon System Open Architecture (WSOA) project, and provides the Air Force Kesearch Lab (AFRL) with on going technical information that will eventually apply to real-time aspects of all C2 programs. Continue Virtual Engineering Environment (VEE). The objective of VEE is to provide the DoD user with a low-cost, reconfigurable and scaleable engineering environment; develops concepts and technologies, and employs common components aimed at significantly improving embedded software development and test, while at the same time, reducing facility acquisition and maintenance costs. VEE technologies and	VSOA) project, and provides the Air Force Research cts of all C2 programs. JoD user with a low-cost, reconfigurable and on components aimed at significantly improving on and maintenance costs. VEE technologies and
9	\$870	components will be applied to both current and next-generation weapon system software development and test environments. VEE will leverage off commercial hardware and software as well as build upon existing technologies previously developed and demonstrated under the Embedded Computer Resource (ECR) Support Impvovement Program (ESIP) and CRSIP. Continue Weapon System Open Architecture (WSOA). Application of Open System Architecture (OSA) to embedded avionics applications is a key element of AFRL's strategy for future weapon systems development. Previous demonstrations supported by the DoD have shown the application of Ada 95, Object-Oriented methodology, and real-time distributed processing with open systems infrastructure to embedded avionics systems. WSOA represents the next logical extension by providing a bridge between embedded avionics and command and control	elopment and test environments. VEE will leverage γ developed and demonstrated under the Embedded ecture (OSA) to embedded avionics applications is a rations supported by the DoD have shown the ith open systems infrastructure to embedded in embedded avionics and command and control
9	\$2,356	computer and intelligence (C3I) systems with an open systems 'virtual backplane'. Total	
9	B. Budget Activity Justification This program is in Budget Activit	B. Budget Activity Justification This program is in Budget Activity 7, Operational System Development, because it provides support to operational systems.	systems.
٥	Project 674851	Page 2 of 6 Pages	Exhibit R-2 (PE 0708612F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ITEM JUST	IFICATION	I SHEET (R-2 Exhi	bit)		DATE February 2000	y 2000
900 07.	вирсет астилту 07 - Operational System Development	ment		PE NUMBER AND TITLE 0708612F Comp Program	AND TITLE F. Comput e	er Resour	oddnS səc	PENUMBER AND TITLE 0708612F. Computer Resources Support Improvement674851 Program	PROJECT ent674851
<u>e</u>	C. Program Change Summary (\$ in Thousands)	housands)			EV 1000	EV 2000		FV 2001	Total Care
555	Previous President's Budget (FY 2000 PBR) Appropriated Value	BR)			0	0 0		0	TBD
<u> </u>	Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions	\eprogram							
99	 Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR 	2000 PBR			0	0		2,356 2,356	TBD
5	Significant Program Changes: In FY 2001, funding was moved to this PE from PE 0708611F, Project 673090.	PE from PE 07086]	11F, Project 673	.060					
9	D. Other Program Funding Summa FY	ry (\$ in Thousands) 7 1999 FY 2000 Actual Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to. Complete	Total Cost
<u> </u>	AF RDT&E Other APPN PE 0708611F/3080 2, PE 0708611F/3400 9, PE 0708612F/3080 PE 0708612F/3400	2,356 2,237 9,377 19,417	2,288	2,341	2,394	2,445	2,500	Continuing Continuing	4,593 28,794 Continuing Continuing
9	E. Acquisition Strategy All major contracts within this Program Element were awarded after full and open competition.	3lement were award	led after full and	l open competit	ion.				
9	F. Schedule Profile			FY 1999		FY 2000	000	FY	FY 2001
Ц.	Project 674851		Pa	Page 3 of 6 Pages				Exhibit R-2 (PE 0708612F)	PE 0708612F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	ON SHEET (R-2 Exh	libit)	DATE		February 2000	
BUE 07	вирсет астииту 07 - Operational System Development	PE NUMBER AND TITLE 0708612F Compu. Program	PROJECT Computer Resources Support Improvement674851	Suppor	t Impro	PR(РРОЈЕСТ 674851
(2)	F. Schedule Profile Continued	$\frac{\text{FY 1999}}{2}$	EY 2000	4	-	FY 2001	4
555555555555555555555555555555555555555	Start Adaptive Software Flight Demonstration (ASFD) ASFD Demo Adaptive Software Technology Demos (ASTD) Automated Operational Flight Program (OFP) Validatio Start Embedded Information Systems Re-engineering (E EISR Demos Incremental Software Evolution for Real-Time (INSER) Incremental Upgrade of Legacy Systems (IULS) Tech D Reconfigurable Aerospace Computer Emulator (RACE) Virtual Test Station (VTS) Demo Start Virtual Engineering Environment (VEE) VEE Demos Start Weapon System Open Architecture (WSOA) WSOA Demo Real-Time DII COE IPT Support DII COE IPT: Defense Information Infrastructure (DII) * denotes completed event X denotes planned event	(COE)	* X X X X X * X * * * * * *		- ×		* × ×
	Project 674851	Page 4 of 6 Pages			Exhibit	Exhibit R-2 (PE 0708612F)	3612F)

at System Development State Breakdown (\$ in Thousand\$) State Enclandown (\$ in Thousand\$) State Enclandord (\$ in Thousand\$) Ware Technology Development Program Integrated of Legacy Systems Tech Demo to Receive Encland or Receive Enclandary Broport Computer Enmlator Support Contract Support Contract Method/Type Award or Berforming Project Method/Type Award or Brodining Activity Office Total Prior Budget Budget Bit Operations Objections N/A		RDT&E PROGRAM ELEMENT		PROJECT COST BREAKDOWN (R-3)	OST BF	REAKDO!	WN (R-3)		DATE F (February 2000	00
Adaptive Software Technology Development Incremental Upgrade of Legacy Systems Technology Development Incremental Upgrade of Legacy Systems Tech Demo Reconfigurable Acrospace Computer Emulator Real-Time Defense Information Infrastructure Common Operating Environment Integrated Process Team Support Computer Emulator Real-Time Defense Information Infrastructure Common Operating Environment Weapon System Open Architecture Virtual Engineering Environment Weapon System Open Architecture Total B. Budget Acquisition History and Planning Information (\$in Thousands) Reaforming Organizations: Contractor of Contract Contractor of Ending Obligation Activity Office Total Prior Reaforming Organizations SAIC Product Development Organizations SAIC TRW DO Various N/A N/A N/A NA N/A N/A N/A Other (RT DII COE) Support and Management Organizations Support and Management Organizations Support and Management Organizations Support and Management Organizations Iest and Evaluation Organizations	вире 07 -	SET ACTIVITY • Operational System Develop	ment		PE NUMBI 070861 Progra	ER AND TITLE 2F Compi m	uter Resou	urces Sup	port Imp	rovement(РRОЈЕСТ 674851
Adaptive Software Technology Development Incremental Upgrade of Legacy Systems Tech Demo Reconfigurable Acrospace Computer Emulator Real-Time Defense Information Infrastructure Common Operating Environment Integrated Process Team Support Virtual Engineering Environment Weapon System Open Architecture Virtual Engineering Environment Vertor Defension System Open Architecture Load B. Budget Acquisition History and Planning Information (\$\$ in Thousands) Reforming Organizations: Contractor or Method/Type Award or Performing Office Total Prior Recontractor or Method/Type Obligation Activity Office EAC 10 FY 1999 FY 1999 Performing Organizations SAIC DO Various N/A N/A N/A N/A N/A N/A Support and Management Organizations Test and Evaluation Organizations Test and Evaluation Organizations Test and Evaluation Organizations Test and Evaluation Organizations	()	A. Project Cost Breakdown (\$ in Tho	usands)				FV 1	000	EV 20	0	FV 2001
Process Team Support Virtual Engineering Environment Weapon System Open Architecture Total B. Budget Acquisition History and Planning Information (S in Thousands) Performing Organizations: Contractor of Contract Government Method/Type Award or Performing Project Government Organizations Contractor of Contract Contractor or Contract Government Method/Type Award or Performing Project Performing Organizations Contractor or Contract Contractor or Contract Government Method/Type Award or Performing Project Performing Organizations SAIC DO Various N/A N/A N/A Other (RT DII COE) Support and Management Organizations Test and Evaluation Organizations	5555	Adaptive Software Technology Develor Incremental Upgrade of Legacy Systems Reconfigurable Aerospace Computer En	1		_	7			07	8	350
B. Budget Acquisition History and Planning Information (\$in Thousands) Performing Organizations: Contract Contractor or Contract Contract Government Method/Type Award or Performing Project Budget Budget Budget Performing Or Funding Obligation Activity Office For 1999 FY 1999 FY 2000 FY Product Development Organizations Various N/A N/A N/A FY 1999 FY 1999 FY 2000 FY TRW DO Various N/A Cockheed-Martin DO Various N/A N/A N/A N/A N/A N/A Support and Management Organizations Activity N/A N/A N/A N/A N/A Test and Evaluation Organizations Activity N/A	933	Near-1 line Defense information infrasti Process Team Support Virtual Engineering Environment Weapon System Open Architecture Total		peranng Environi	nent integra	n n					636 870 870 2,356
Performing Organizations: Contractor or Government Contract Contract or Government Contract or Government Performing Date Performing Date Project Budget Bu	3	B. Budget Acquisition History and Pla	uning Informatio	n (\$ in Thousand	ন্ত্র						
Method/Type Award or Rerforming Project or Funding Obligation Activity Office Total Prior Budges Budges Project Vehicle Date EAC EAC to FY 1999 FY 1999 FY 2000 FY. DO Various N/A	9										
opment Organizations N/A N/A N/A N/A DO Various N/A N/A Trin DO Various N/A N/A COE) Management Organizations DO Various N/A N/A N		Government Method/T Performing or Fundin Activity Vehicle	• • • •	Performing Activity EAC	Project Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
DO Various N/A N/A DO Various N/A N/A COE) Mation Organizations DO Various N/A N/A N/A N		Product Development Organizations SAIC DO	Various	N/A	N/A				436	Continuing	TBD
rtin DO Various N/A			Various	N/A	N/A				200	Continuing	TBD
(COE) MA N/A Sanagement Organizations ation Organizations		ed-Martin	Various	N/A	N/A				375	Continuing	TBD
nation Organizations		Other (RT DII COE) Support and Management Organizations		N/A	N/A				75	Continuing	TBD
		Test and Evaluation Organizations									
Page 5 of 6 Pages	<u>ď</u>	Project 674851		Pag	e 5 of 6 Pag	es			Exhib	Exhibit R-3 (PE 0708612F)	08612F)

RDT&E PROGRAM ELEMENT/PROJECT	PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0
вирсет Астіуіту 07 - Operational System Development	PENUMBER AND TITLE 0708612F Computer Resources Support Improvement 674851 Program	ter Resou	rces Supp	oort Impr	PF ovement67	РRОЈЕСТ 674851
(U) Government Furnished Property: Contract Method/Type Award or Item or Funding Obligation Delivery Description Vehicle Date Product Development Property Support and Management Property Test and Evaluation Property	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	<u>Total</u> Program
Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001 2,356	Budget to Complete TBD	<u>Total</u> <u>Program</u> TBD
Total Project Total Project				2,356	TBD	TBD
Project 674851	Page 6 of 6 Pages			Exhibi	Exhibit R-3 (PE 0708612F)	8612F)

	RDT&E BUDGET ITEM JU	USTIFIC	ATION	JSTIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)	:	DATE		February 2000
8UDG 07 -	вирсет астіліту 07 - Operational System Development			PE NUMBEI 090121 8	PE NUMBER AND TITLE 0901218F CIVIIIS	PE NUMBER AND TITLE 0901218F Civilian Compensation Program	ensation	Progran	c	РРОЈЕСТ 674139
	COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674139	9 Civilian Compensation Program	6,700	6,891	7,209	7,020	7,150	7,307	7,468	0	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
£	A. Mission Description This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.	an compensa Employees t of the Air F	tion benefit Compensati orce for its	n compensation benefits for disability due to personal injury sustained while in the performance of duty or d Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes	ty due to per A) under Ti ssts; therefor	rsonal injury tle 5 U.S.C., e, this is a M	sustained w Chapter 81 (UST PAY	vhile in the p . The Depar bill for Air F	oerformance or rtment of Lab Force. The P	of duty or due to oor (DOL) E excludes
333	FY 1999 (\$ in Thousands) \$6,700 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease \$6,700 Total	ım to compen	sate employ	yees assignec	1 to RDT&E	facilities for	ır worked-re	lated injury o	or disease	
933	FY 2000 (\$ in Thousands) \$6,891 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease \$6,891 Total	ım to compen	sate emplo	yees assignec	1 to RDT&E	facilities fo	r worked-re	lated injury o	or disease	
999	FY 2001 (\$ in Thousands) \$7,209 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease \$7,209 Total	ım to comper	ısate emplo	yees assignec	1 to RDT&E) facilities fo	ır worked-re	lated injury	or disease	
9	B. Budget Activity Justification This Program Element (PE) is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained wl performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81	in support of lisease accord	payment of ling to the F	civilian com ederal Empl	pensation be oyees Comp	enefits for di ensation Ac	isability due 1t (FECA) ur	to personal nder Title 5 I	injury sustai U.S.C., Chap	support of payment of civilian compensation benefits for disability due to personal injury sustained while in the sease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81.
<u>σ</u>	Project 674139		Pag	Page 1 of 4 Pages	ŞŞ				Exhibit R-2	Exhibit R-2 (PE 0901218F)

	RDT&E BUDGET ITEM JU	3ET ITE		-ICATION	STIFICATION SHEET (R-2 Exhibit)	R-2 Exhi	bit)	DA	DATE Februa	February 2000	
8UD(07	вирсет аститту 07 - Operational System Development	elopment			PE NUMBER AND TITLE 0901218F CIVIII	AND TITLE . Civilian	Compens	ы тіт∟е Civilian Compensation Program		PROJECT 674139	ест 39
Ω	C. Program Change Summary (\$ in Thousands)	(\$ in Thousar	(spi		i	FY 1999	FY 2000	=	FY 2001	To	Total Cost
9	Previous President's Budget (FY 2000 PBR)	2000 PBR)				6,737	6,973	J	7,210		TBD
<u>3</u>	Appropriated Value					6,756	6,973	3			
3	Adjustments to Appropriated Value	ne									•
	a. Congressional/General Reductions	ions				-19					
	 b. Small Business Innovative Kesearch c. Omnibus or Other Above Threshold Reprogram 	earch shold Reprogr	am				-38	∞			
	d. Below Threshold Reprogram	•									
	e. Rescissions					-37	4	4			É
99	f. Other Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	ce FY 2000 P PBR	BR			6,700	6,891		-1 7,209		TBD
9	Significant Program Changes: N/A										
(D. Other Program Funding Summary (S in Thousands) EY 1999 EY 2000	mary (\$ in T FY 1999	Thousands) EX 2000 Extimate	FY 2001	EY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Ferimate	Cost to	1	Total Cost
99	AF RDT&E Other APPN	Octina	Significan	Application	A TOTAL OF THE PROPERTY OF THE		Amming				
3	Operation and Maintenance	22,355	22,679	23,528	25,245	25,759	26,789	27,860	0		TBD
3	E. Acquisition Strategy N/A										· · · ·
<u>(c)</u>	F. Schedule Profile				FY 1999		FY 2	FY 2000	II.	FY 2001	
				1	2 3	4	1 2	3 4	1 2	8	4
<u> </u>	(U) N/A										
ıι	Project 674139			Pag	Page 2 of 4 Pages				Exhibit R-2 (PE 0901218F)	(PE 09012	18F)

	RDT&E PROGRAM ELEMENT	GRAM ELE		/PROJECT COST BREAKDOWN (R-3)	OST BR	EAKDOV	VN (R-3)		DATE Fe	February 2000	06
6	вирсет астіліту 07 - Operational System Development	Developme	nt		PE NUMBE 090121	PE NUMBER AND TITLE 0901218F Civilian Compensation Program	Compen	sation Pro	gram	9	РРОЈЕСТ 674139
9	A. Project Cost Breakdown (\$ in Thousands)	n (\$ in Thousand	क्र				FY 1999	660	FY 2000	<u> </u>	FY 2001
99) n/a) Total						1	3		ĸ	
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	tory and Plannin	g Informatio	ın (\$ in Thousan	(ফু					,	
9	Performing Organizations: Contractor or	Contract Method/Tyne	A ward or	Performing	Project						
	Performing Activity	or Funding Vehicle	Obligation Date	Activity EAC	Office EAC	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
	n/a Product Development Organizations	nizations									
	n/a	,									
	Support and Management Organizations n/a	reanizations									
	Test and Evaluation Organizations	zations									
9		operty:									
		Contract Method/Type	Award or								
	<u>Item</u>	or Funding	Obligation	Delivery		Total Prior	Budget	Budget	Budget	Budget to	Total
	Description	Vehicle	<u>Date</u>	<u>Date</u>		to FY 1999	FY 1999	FY 2000	FY 2001	Complete	Program
	n/a	1									
	Support and Management Property	roperty									
	n/a										
	Test and Evaluation Property	×	`								
	n/a										
	Project 674139			Pag	Page 3 of 4 Pages	S			Exhibi	Exhibit R-3 (PE 0901218F)	01218F)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	OST BREAKDOV	VN (R-3)		DATE Fe	February 2000	0
BUDGET ACTIVITY	PE NUMBER AND TITLE				HA.	PROJECT
07 - Operational System Development	0901218F Civilian Compensation Program	Compens	sation Pro	gram	9	674139
Subtotals	Total Prior to FY 1999	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
NA						
Subtotal Product Development						
Subtotal Support and Management						
Total Project						TBD
Project 674139 Ps	Page 4 of 4 Pages			Exhibi	Exhibit R-3 (PE 0901218F)	1218F)

RDT&E	RDT&E BUDGET ITEM JU		ATION	STIFICATION SHEET (R-2 Exhibit)	(R-2 Ex	thibit)		DATE	Februa	February 2000
BUDGET ACTIVITY 07 - Operational System Development	tem Development			PE NUMBEF 1001018	PE NUMBER AND TITLE 1001018F NATO AGS	AGS				PROJECT 670002
COST (\$ in Thousands)	Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
670002 NATO JSTARS		2,685	0	3,270	0	0	0	0	0	TBD
Quantity of RDT&E Articles	rticles	0	0	0	0	0	0	0	0	TBD

Note: On 29 October 1999 the Air Force informed Congress of intentions for an FY99 New Start: the NATO Airborne Ground Surveillance, for the NATO Alliance Ground Surveillance (AGS) requirement. The Air Force intends to use \$.477 million, FY99 RDT&E remaining in the NATO Joint STARS line. The Air Force will support a Below Threshold Reprogramming of \$1.6 million FY00 RDT&E.

(U) A. Mission Description

accomplishment of the NATO military operations.... In Nov 97 the NATO Conference of National Armaments Directors (CNAD) rejected a US 'fast track' offer of the The NATO Staff Requirement (NSR) for an Alliance Ground Surveillance (AGS) System, Sep 97, states the requirement for a NATO owned and operated capability to "...detect, locate, recognize and track specified activities on and near the surface and disseminate related data in timely manner, and thereby contribute to the successful US JSTARS system to meet the AGS requirement, and directed the AGS Provisional Project Structure (PPS) to look at fresh options to satisfy the requirement. In Dec 97 the US offered the JSTARS Radar Technology Insertion Program (RTIP) advanced sensor on a platform of NATO's choice. In Apr 98 the CNAD endorsed the PPS and presented a study based on the US RTIP advanced sensor system. In May 99 the CNAD authorized entrance into a 2-year, RTIP-based, project definition phase for with support of the Army, in carrying out overall US participation in this project and to be specifically responsible for the Air Segment. The Air Force plans to support designation as a NATO Project has been requested. Nations that have agreed to participate in this effort to date are: US, Canada, Norway, Denmark, and Belgium. All recommendation for conducting a one year Concept Definition Study (CDS) led by the Provisional Project Office (PPO). The US led the airborne portion of the CDS NATO nations have been encouraged to join the effort and several have indicated interest in joining. In Aug 99 USD/AT&L directed the Air Force to be lead service, Standup of the PDO is expected in Feb 00 and its work will last for approximately two years. To initiate the activity the Air Force plans to use \$.477 million FY99 interested nations, based on a proposal by Norway. This project definition effort has been named the Trans-Atlantic Advanced Radar Project (TARP) and formal agreement, a program charter, and a request for proposal for a fully integrated and interoperable NATO owned and operated airborne ground surveillance system. the effort through participation in a Project Definition Office (PDO) in Brussels, BE. The objective of the Project Definition effort is to prepare an international RDT&E funds remaining in the NATO Joint STARS line. The FY00 effort will be supported by a below threshold reprogramming action.

Thousands)	
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Ξ.	
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1999	
FY	
5	

(U) \$380
(U) \$1,808
(U) \$20
(D) \$20
(D) \$20
(E) Provisional Program Office Support

Project Definition Office Support (New Start pending with Congress; letter notification) \$477

Page 1 of 5 Pages **Project 670002**

1679

Exhibit R-2 (PE 1001018F)

	RDT&E BUDGET ITEM JUSTIFICATION S	JSTIFICATION SHEET (R-2 Exhibit)		DATE February 2000	000
8UD 04	вирсет астіvіту 07 - Operational System Development	PE NUMBER AND TITLE 1001018F NATO AGS			PROJECT 670002
9					
99	FY 1999 (\$ in Thousands) Continued \$2,685				
99	FY 2000 (\$ in Thousands) \$0 The Air Force plans a Below Threshold Reprogramming	hreshold Reprogramming action, upon Congressional approval of the FY99 New Start Request, to add 1,600 for	pproval of the FY	'99 New Start Request, to ad	1 1,600 for
9	support for the operations of the PDO, and other NATO studies as required. \$0 Total	studies as required.			
999	FY 2001 (\$ in Thousands) \$3,270 Project Definition Office support and support NATO inte \$3,270 Total	ort and support NATO interoperability studies and efforts	çç		
<u>e</u>	B. Budget Activity Justification This program is in Budget Activity 7, Operational System Development because it involves the modification of radar sensor technology currently fielded.	e it involves the modification	of radar sensor te	chnology currently fielded.	
3	C. Program Change Summary (\$ in Thousands)				,
93	Previous President's Budget (FY 2000 PBR)	FX 1999 0	67 2000 0	FY 2001 0	Total Cost TBD
<u>3</u> (2	Appropriated value Adjustments to Appropriated Value	Þ			
	a. Congressional/General Reductions b. Small Business Innovative Research	-15			
	c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram	2,700			
	e. Rescissions f Other		00		TRD
<u> </u>	Adjustments to Budget Years Since FY 2000 PBR Current Budget Submit/FY 2001 PBR	2,685	0	3,270 3,270	TBD
<u>(</u>	Significant Program Changes: A Below Threshold Reprogramming is planned to add 1,600 to FY00, for the Air Force share of support to operations of the PDO. Funding in FY01 added by DOD direction.	ir Force share of support to o	perations of the P	DO.	
ď	Project 670002 Page 2	Page 2 of 5 Pages		Exhibit R-2 (PE 1001018F)	1001018F)
		0021			

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	JSTIFICATION	I SHEET (R-2 Exhi	lbit)	Δ	DATE February 2000	y 2000
BUE 07	BUDGET ACTIVITY O7 - Operational System Development		PE NUMBER AND TITLE 1001018F NATC	PE NUMBER AND TITLE 1001018F NATO AGS	GS			PROJECT 670002
(D)	D. Other Program Funding Summary (S in Thousands) EY 1999 EY 2000 Actual Estimate	ousands) FY 2000 FY 2001 Fetimate Fetimate	FY 2002 Fstimate	FY 2003 Estimate	EY 2004 Fstimate	FY 2005 Fedimate	Cost to	Total Cost
99	AF RDT&E Other APPN N/A							
9	E. Acquisition Strategy The U.S. and four other NATO nations (Canada, Belgium, Denmark, and Norway) are participating in a Project Definition effort for a NATO owned and operated ground surveillance capability, based on the US JSTARS Radar Technology Insertion Program (RTIP) advanced radar. The Project Definition work is expected to conclude in 2002, and is expected to produce documentation to be presented to NATO nations necessary for a decision on whether to proceed with acquisition of an airborne ground surveillance system based on this effort.	rium, Denmark, and Nc lar Technology Insertic presented to NATO na	orway) are parti on Program (RT ations necessary	cipating in a F TP) advanced / for a decision	roject Definition radar. The Pro n on whether to	on effort for a ject Definition proceed with	NATO owned and 1 work is expected acquisition of an a	l operated ground to conclude in airborne ground
9	F. Schedule Profile		Y 199		<u>FY 2000</u>	000	FY	FY 2001
<u> </u>	CNAD authorization, start of RTIP- based Project Definition effort Standup of Project Definition Office * - Denotes Completed Event X- Denotes Planned Event	I finition effort	c *	4	- - -	ε 4	1 2	κ 4
	Project 670002	Pag	Page 3 of 5 Pages				Exhibit R-2 (PE 1001018F)	E 1001018F)
			1001					

	RDT&E PROGRAM ELEMENT	RAM ELE	MENT/PF	/PROJECT CO	OST BF	COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	0(
800x	BUDGET ACTIVITY 07 - Operational System Development	Developme	nt		PE NUMBER AN 1001018F	PE NUMBER AND TITLE 1001018F NATO AGS	AGS			id 9	PROJECT 670002
9	A. Project Cost Breakdown (\$ in Thousands)	(\$ in Thousan	(Sp				EV 1000	000	HV 2000	_	EV 2001
5	NATO Studies] "	380	0	a - 6	0
33	Other Government Costs						1,	1,808			
<u> </u>	Provisional Project Office Support Project Definition Office Support and NATO Interoperability studies and efforts Total	pport port and NATC) Interoperabilit	y studies and eff	orts		, ,	20 477 3.685	c	_	3,270
9	NOTE: For FY00 RDT&E, a Below Threshold Reprogramming action is planned to add 1,600 to be used for Project Definition Office support	1 Below Thresh	old Reprogramn	ning action is pla	ınned to adı	11,600 to be us	2, ed for Project	oos Definition O	ffice support	_	3,270
3	B. Budget Acquisition History and Planning Information (\$ in Thousands)	ry and Plannir	ig Information	(\$ in Thousand	ଞ						
3	Performing Organizations:										
	Contractor or	Contract	•		-						
	Government Performing	Method/Type or Funding	<u>Award or</u> Obligation	Performing Activity	Project Office	Total Prior	Budget	Budget	Budget	Budget to	Total
	Activity	Vehicle	Date	EAC	EAC	to FY 1999	FY 1999	EY 2000	FY 2001	Complete	Program
	Product Development Organizations	<u>zations</u>									
	Northrop Grumman	IDIQ	Apr 96	2,376	2,376	2,376					2,376
	Rome Labs	Fixed Price	Sep 96	485	485	485					485
	Northrop Grumman	IDIQ	Jan 97	3,782	3,782	3,782					3,782
	Northrop Grumman	IDIQ	Dec 97	637	637	637					637
	Northrop Grumman	IDIQ	May 98	944	944	944					944
	Northrop Grumman	IDIQ IDIQ	Sep 98	1,404	1,404	1,404					1,404
	Northrop Grumman		May 99	520	520	140	380				520
	Project Development Office	,	•				477		3,270		3,747
	Support and Management Organizations	ranizations									
	ESC (Provisional					4	20			0	24
	Project Office)	Cost Plus	Oct 94/			1,704	1.371			c	3 075
		Award Fee	Jun 96							•	2
	TEMS	IDIQ	Mar - May			2,255	337			0	2,592
ъ	Project 670002			Pag	Page 4 of 5 Pages	es			Exhibi	Exhibit R-3 (PE 1001018F))1018F)

RDT&E PROGRAM ELEMENT/PRO	/PROJECT COST BREAKDOWN (R-3)	VN (R-3)		DATE Fe	February 2000	
вирсет астилту 07 - Operational System Development	PE NUMBER AND TITLE 1001018F NATO AGS	AGS			PR 67	РРОЈЕСТ 670002
(U) Performing Organizations Continued: Support and Management Organizations						
ious tracts	800	100			0	006
Lest and Evaluation Organizations Subtotals	Total Prior to FY 1992	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Subtotal Product Development Subtotal Support and Management	9,815	857 1,828		3,270	0	13,942 6,591
Subfotal Test and Evaluation Total Project	14,578	2,685		3,270	0	20,533
Project 670002	Page 5 of 5 Pages			Exhibit	Exhibit R-3 (PE 1001018F)	1018F)

1. COMPONENT 2. DATE FY 2000 MILITARY CONSTRUCTION PROJECT DATA AIR FORCE (computer generated) (AFMC) 3. INSTALLATION AND LOCATION 4. PROJECT TITLE KIRTLAND AIR FORCE BASE, NEW MEXICO Minor Construction < \$500,000 6. CATEGORY CODE 7. PROJECT NUMBER 8. PROJECT COST (\$000) 5. PROGRAM ELEMENT 62601F 660.0 Q COST ESTIMATES

9. COST ESTIMA		QUANTITY	UNIT COST	COST (\$000)
Minor Construction using RDT&E funds for FY2000				
Construct SCIF Area, Building 497	LS			350
Construct SCIF Area, Building 914	LS			100
Install Animal Barriers	LS			30
Add Lab Space, Building 362	LS			150
Construct Parking Area	LS			<u>30</u> 660

10. DESCRIPTION OF PROPOSED WORK Construct Sensitive Compartmented Information Facilities (SCIF) in building 497 and 914, install animal barriers around building 427, alter an area in building 362 for R&D lab space, and construct additional asphalt parking area for building 760.

11. REQUIREMENT: Unspecified Minor Construction (13.15.4).

PROJECT: Multiple projects as described above.

REQUIREMENT: Additional SCIF space is required to support the DE Headquarters and the DE Satellite Assessment Center, animals living under the building must be kept out of the work area, additional lab space is needed to support classified S&T work, additional parking is needed to replace the spaces lost as a result of construction of a new facility sited in a portion of the parking lot.

CURRENT SITUATION: Adequate SCIF space is not available, animals enter the facility from areas they inhabit under the floor, additional lab space is not available, and parking area can not handle the parking load of the facility.

IMPACT IF NOT PROVIDED: Some classified work may be delayed or executed in a shared SCIF. Animals will continue to enter the facility disrupting the work environment. Classified lab work will not be accomplished possibly delaying some S&T programs. Cars will continue to part illegally with increased potential for vehicle accidents.

I. COMPONENT AIR FORCE (AFMC) 3. INSTALLATION ROME LAB, NEW	N AND L	` •	STRUCT er genera	ted)	ROJE	СТ ТІТІ	LE			ATE
5. PROGRAM ELE		6. CATEGORY CODE	7. PROJ	ECT						ST (\$000)
62702F		610-281	UI	DF9	3002P2	2			465	5.0
		9. COS	T ESTIM.	ATE	S					
		ITEM			U/M	QUAN	TITY	UNI COS		COST (\$000)
Minor Construction using RDT&E funds for FY2000:										
Upgrade Res	earch E	ngineering Area, Bldg 1	l 06		LS					465.0

10. DESCRIPTION OF PROPOSED WORK: This is a quality of life improvement for the Sensors Directorate offices in Building 106. Improvements include: replacement of existing asbestos cement partitions with a nonasbestos wall system, replacement of obsolete building systems including electrical distribution, lighting, suspended ceilings, fire detection and protection systems.

11. REQUIREMENT: Unspecified Minor Construction (13.15.4).

PROJECT: Upgrade Research Engineering Area, Bldg 106

REQUIREMENT: Rome Research Site facilities require modern laboratory and professional office facilities to accomplish its mission.

<u>CURRENT SITUATION:</u> Building 106 was originally built in 1943 and renovated into a laboratory in 1952, virtually no changes other than painting have occurred since. Facilities are substandard, inefficient, and outmoded by today's standards, which seriously impacts on their safety, efficiency, productivity, and denies personnel the benefit of a modern quality office/lab facility which meets AF standards.

IMPACT IF NOT PROVIDED: The office power systems consist of 1950's vintage open bussways which pose a potential electrocution hazard to personnel, and are subject to frequent outages due to overloading will continue. All of the walls are constructed of asbestos cement partitions, and the areas above the ceilings contain friable asbestos material, whenever any minor work is accomplished, the area has to be evacuated causing lengthy unscheduled work stoppages in emergencies and scheduled work stoppages in non-emergencies

1. COMPONENT AIR FORCE]	FY 2000 MILITARY CON (comput	STRUCTIO er generated		JECT D	OATA	2.	DATE
3. INSTALLATION	I AND L	OCATION	4.	PROJE	CT TIT	LE	.	
EDWARDS AIR FO	RCE BA	SE, CALIFORNIA		AIRB	ORNE	LASEF	R COMPLE	EX UPGRADE
5. PROGRAM ELE	MENT	6. CATEGORY CODE	7. PROJEC	T NUM	BER	8. PR	OJECT CO	OST (\$000)
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		9. COS	T ESTIMAT	ES	T			
		ITEM		U/M	QUAN	TITY	UNIT COST	COST (\$000)
AIRBORNE LASER COMPLEX UPGRADE								5,171.5
AIRBORNE LASER COMPLEX UPGRADE CONSTRUCT GROUND PRESS RECOV ASSY								(621.0)
AREA				LS				(1,948.0)
FACILITY UP	GRADI	ES (B151, 369, 370)		LS				(2,602.5)
CONSTRUCT	SYSTE	EMS INTEGRATION I	LAB					699.0
SUPPORTING I				LS				(431.0)
		FARM SYSTEM		LS				(268.0)
	NEUT	RALIZATION SYSTE	M					5,870.5
SUBTOTAL								<u>587.1</u>
CONTINGENC	` .	•						6,457.6
TOTAL CONTR								387.5
· · · · · · · · · · · · · · · · · · ·		CTION, AND OVERI	1EAD (6%)				6845.1
TOTAL FUNDE	D COS	T						

10. DESCRIPTION OF PROPOSED WORK: Modify Birk Flight Test Facility to accommodate ABL test and R&D equipment. Work includes infrastructure for a Ground Pressure Recovery Assembly (GPRA), Systems Integration Lab (SIL), and associated facility upgrades at B151. Construct infrasturcture for a laser fuel farm, and a neutralization subsystem at B369 and B370. (AFI 65-601, Chapter 13.15.5 Contractor Facility)

11. REQUIREMENT: As Required

PROJECT: Modify existing Birk Flight Test Facility (BFTF) (Building 151and associated areas) and install necessary R&D equipment to support the Program Definition Risk Reduction (PDRR) Airborne Laser (ABL) RDT&E program.

REQUIREMENT: The PDRR ABL program is designed to exploit powerful technologies which have evolved over the past 20 years and integrate them into a revolutionary airborne weapon system which is lethal to boosting enemy Theater Ballistic Missiles (TBMs) at extremely long ranges. The ABL also plays a significant role in assisting the other joint tiers in the Theater Missile Defense architecture by reducing the number of targets, providing missile trajectory information to the theater point defenses, and identifying TBM launch points for counter force strikes against mobile launchers. Test facilities must be capable of supporting a test program that integrates a multi megawatt chemical oxygen iodine laser (COIL) and beam control system with a large aperture telescope into a Boeing 747 400F aircraft. Since the PDRR ABL aircraft will be a first-of-its-kind, modifications and equipment installation will be designed and modified as the program proceeds. With the facility capabilities of BFTF, building a new temporary facility for the PDRR ABL is an unnecessary expense.

CURRENT SITUATION: Current BFTF facilities were designed to support wide body aircraft like the Boeing 747-400F. However, limited facility infrastructure modifications are needed to support the weapon

1. COMPONENT AIR FORCE	FY 2000 MILITARY CONSTRUCTION PROJECT DA (computer generated)	ATA	2. DATE
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EDWARDS AIR FO	DRCE BASE, CALIFORNIA		
4. PROJECT TITI		5. PROJE	CT NUMBER
AIRRORNE I ASEI	R COMPLEX UPGRADE	E	SPM981305
test and operation site chosen to more lacks utility supposystem. Upgrade: IMPACT IF NO be negatively improportactor's overhoschedule delays we contractor. Existi ADDITIONAL:	of high energy laser systems and laboratory equipment in unt a pressure recovery system, designed to simulate PDF ort. B369 and B370 lack infrastructure to support a laser first to these facilities are necessary to support the ABL devot PROVIDED: Testing and delivery of our nations next acted. Developmental milestones will not be met, resulting ead, daily operations, and increasing the taxpayer burden. ill be incurred if the government cannot provide the faciliting contractor facilities are not sufficient to support the PI 10 USC 2351, 2353, and 2358 authorizes the use of RD by for the performance of a contract. This construction present the support of the performance of a contract.	n the SIL. RR ABL opicel farm or elopment. It generation in higher Significanties required DRR ABL. T&E funds	The exterior apron perating altitudes, a neutralization a laser systems will costs to the nt costs and d by the integration at to construct

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EGLIN AIR FORC	E BASE.	FLORIDA				Minor	Constr	uction	< \$5	500,000
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11. REQUIREM	IENT:	Unspecified Minor Cons	struction	(13.	.15.4)					
PROJECT: Com	mercial	Water Connection								
										
REQUIREMEN equipment.	T: Prov	vide reliable water source	e to test	facil	ity to	suppo	rt fire	protec	tion	for high value
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IMPACT IF NO	T PRO	OVIDED: Potential loss	of high	valu	e equi	pment	due to	fire.		
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1. COMPONENT									2. D	DATE
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AIR FORCE (AFMC)		(comput	ter genera	ited)					İ	
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5. PROGRAM ELEI	MENT	6. CATEGORY CODE	7. PROJ	ÆCT	NUM	BER	8. PR	OJECT	COS	ST (\$000)
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II. KEQUIKEM	ENI:	Unspecified Minor Cons	truction	(13.	15.4).					
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I KOJECI. AM	Dunan	ig 22D wp support me n	iew Coa	lling	SFIOC	ess Lu	16			
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control equipment	and pro	cess line to provide a fur	nctional	worl	k flov	v for all	1 R&E) coati	ngs .	and corrosion
projects.			110 110 1111	1,01.		, 101	1 1001	, 00	₆	ma concolon
CURRENT SITU	JATIO	N: An existing coatings	process	line	is loc	ated in	a sep	arate t	ouild	ing above a
basement work are	a and is	not capable of integration	ing the n	iew e	equipr	ment an	nd prod	cess in	nto th	he existing line.
Space to be vacated	d is nee	eded to support the expan	nsion of	the	Electo	ochemi	ical Te	esting	area	
		VIDED: The coating pr								
area with the poten	tial for	a toxic spill to seep into	the base	emer	at area	a creati	ng a h	ıazardo	ous e	environment
for the personnel. (Criticall	ly needed space will not	be avail	lable	for o	ther wo	ork un	its in t	he d	irectorate.

1. COMPONENT		EV 4001 MIX PTADV CO	NOTOLIC	TION	ם חחר	TERCYP I		2.	DATE	
AIR FORCE	1	FY 2001 MILITARY CON (comput	NSTRUC ter genera			JECTI	JATA			
(AFMC)	<u></u>	-								
3. INSTALLATION A	AND LOC	CATION		4. P	ROJE(CT TITL	Æ			
ROME LAB, NEW	YORK				!	Minor	Constr	ruction <	\$ <u>500</u> ,	,000
5. PROGRAM ELEM	ENT	6. CATEGORY CODE	7. PROJ	ECT 1				OJECT CO		
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Willion Constitution	IOII GOAL	g ND 1001 1 minus 101 1 1	. 2001.							
Upgrade Res	earch E	Engineering Area, Bldg	104		LS					350.0
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		g electrical distribution, li	_		-		-			
	_	ation of systems furnitur		•					,	.
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facility denies pers	sonnel th	he benefit of a modern of	office/lab).						
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1. COMPONENT AIR FORCE (AFMC)]	FY 2001 MILITARY CON (comput	STRUCT er genera		PRO	IECT D	ATA	,	2. D	ATE
3. INSTALLATION	AND L	OCATION		4. P	ROJE	CT TITI	LE			
EDWARDS AIR FO	ORCE B	ASE, CALIFORNIA			1	Minor (Constr	uction	< \$5	00,000
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65807F		211-183	F	SPM	992502	2			49:	5.5
			T ESTIMA	ATE:	S					
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Multi Axis Thrus					SF	8,00	00			495.5
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10. DESCRIPTION OF PROPOSED WORK: Construct a reinforced concrete Multi Axis Thrust Stand at Pad 17. Provide utilities to support remote electrical, fueling, and monitoring while test vehicle is on a raised stand. The test stand structure will be procured from NASA AMES at Moffett Field, CA.

11. REQUIREMENT: Unspecified Minor Construction (13.15.4).

PROJECT: Construct MATS at Pad 17.

REQUIREMENT: Construct a test stand capable of hoisting a test vehicle up to 50' above ground, with a capacity of 60 tons. A new control cab made of concrete masonry units to be placed near the pad. Concrete pad must be reinforced to withstand the weight and thrust of multiple test vehicles with no restrictions. A remotely operated system will monitor the system supplying fuel, electrical, and computer modeling information as testing progresses.

CURRENT SITUATION: A MATS stand exists at NASA AMES that is not being used. The stand could be transferred to Pad 17, where Dryden Flight Research Facility (DFRF), NASA or Joint Strike Fighter Task Force could utilize the facility in testing the new composite vehicles.

IMPACT IF NOT PROVIDED: Costs incurred in research and development will continue to rise. Benefits of knowledge gained from a multi-dimensional thrust exhaust nozzle could reduce costs following information gained utilizing the MATS stand at Pad 17.

1. COMPONENT AIR FORCE (AFMC)]	FY 2001 MILITARY CO (compt	NSTRUCT		PRO	JECT I	OATA		2. D	ATE	
3. INSTALLATION	N AND L	OCATION		4. F	ROJE	CT TIT	LE				
EGLIN AIR FORC	E BASE.	FLORIDA]	Minor	Constr	uction	1 < \$5	00,000	
5. PROGRAM ELE		6. CATEGORY CODE	7. PRO.	ECT						ST (\$000)	
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Minor Construct	ion usin	g RDT&E funds for F	Y2001:								
ETE 4 0000 50 11	r 1,	r in this thin								400.0	
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11177/1041	onsuuci	Widmitions Test Lacing	.)		L					120.0	
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		F PROPOSED WOI	_			-	ity to a	accom	mod	ate test mission	n
and construct a ne	w facilit	y to replace existing n	nunitions	test t	railer	S.					
11 DECHIDEM	IENT.	Unspecified Minor Co	netruction	(13	15 4)					•	
II. KEQUIKEN		onspecified winter con	iisti uction	(13.	13.7)	•					
PROJECT: Mu	ltiple Co	onstruction projects as	described	abo	ve						
REOUIREMEN	T: Con	struction to add new ba	av for bat	hroo	ms ar	nd offic	ce area	as, a n	ew p	arking lot and	l
loading ramp to a	ccommo	date additional munition	ons test pe	erson							
three double-wide	trailers	to support munitions to	est person	nel.							
CURRENT SIT	<u>UATIO</u>	N: Existing facility ca	nnot acco	mme	odate	additic	nal pe	rsonn	el an	d trailers are a	ì
very inefficient an	d costly	alternative to a perma	nent facil	ity.			-				
		VIDED: Test custom		t be	suppo	rted ar	nd mui	nition	s pers	sonnel will	
continue to operat	te out of	inefficient trailer spac	e.								

1. COMPONENT]	FY 2002 MILITARY CON			PRO	JECT I	OATA		2. D	ATE
AIR FORCE (AFMC)		(comput	er genera	ited)						
3. INSTALLATION	N AND L	OCATION		4. F	ROJE	CT TIT	LE			
EDWARDS AIR FO	ODCE D	ASE CALIEODNIA				Minor	Canata	ation	_ es	200 000
5. PROGRAM ELE		6. CATEGORY CODE	7. PROJ	ECT						600,000 ST (\$000)
J. I KOGKAM ELL	MILLIAI	o. CATEGORT CODE	/. FROS	IECI	INOIN	DEK	0. FK	OJECT	CO	31 (\$000)
65807F		116-665			98252	3			35	0.0
		9. COS	T ESTIM	ATE	<u>S</u>					
		ПЕМ			U/M	QUAN	TTTY	UNI' COS		COST (\$000)
Minor Constructi	on using	RDT&E funds for FY	2002:							
Construct Joint S	Strike Fo	orce Harrier Pad			LS					350.0
10. DESCRIP	TION (OF PROPOSED WOR	K: Con	stru	ct cor	l crete 1	est na	d		
	22021	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	LLI COII	iou a	0. 001		.est pu			
11 DEOLUDEN	TENT.	Unanaifad Minas Cana		(12	15 4)					
III. KEQUIKEN	IENI:	Unspecified Minor Cons	struction	(13.	15.4)	•				
PROJECT: Con	struct Jo	oint Strike Force Harrier	r Test Pa	ad						
REQUIREMEN	T: A H	arrier type test pad is red	quired to	allo	w tes	ting of	the v	ertical	take	off capability
of the new Joint S	trike Fig	thter (JSF) aircraft while	providi	ng n	oise a	nd bla	st atter	nuation	۱.	
CURRENT SIT	<u>UATIO</u>	N: There is no facility a	ıvailable	to s	uppor	t this t	est req	uireme	ent.	
IMPACT IF NO	T PRO	VIDED: Lack of this n	nission c	ritica	al cap	ability	will ir	npede	the	successful
testing of this stat	e-of-the	-art aircraft.								

Research, Development, Test and Evaluation, AF	FY98	FY99	FY00	FY98 FY99 FY00 FY01 FY02 FY03 FY04	FY02	FY03	FY04	FY05
BA: 5 - Engineering and Manufacturing Development PE: 0604617 Agile Combat Support	7:	2.3	0.0	0.7	0.0	0.0	0.0	0.0
BA: 7 - Operational System Development PE: 0305128F Security & Investigative Activities	3.3	3.3 1.3 1.4	4.	0.5	0.5	0.5	0.5	0.5
TOTAL COMPONENT	4.4	3.6	4.	3.6 1.4 1.2	0.5	0.5	0.5	0.5